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AUGUST, 1951 VOL. XLV — NO. 2

CONTENTS

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The Wakefield always has been a premium event. It has gone on for many years. Strict rules govern this type of flying. Competition becomes keener every year. Recent modifications of the rules have made the sky the limit in originality of design. But at this point, let's establish a very important fact. Any type of model competition must consider all three types of competitors—beginners, advanced, and the expert. Everyone wants to get into the act. Are we hawking for three classes of Wakefield flying? No sir! More hopefuls will have to show up when the stop watches start turning. Only 22 models entered the New York area eliminations! Let these hopefuls get their feet wet and, when the time comes, they can enter the open competition for the precious cup. But for Pete's sake, don't shut them out by having them get up in the middle of the night to get to a contest before sun-up so no thermals can bother their flights. Too many of the younger element depend on Pop for transportation. Then comes the long wait until darkness sets in so the final rounds of flights can be continued without the repulsive thermal raising its ugly head.

Open competition has always been carried on throughout the day at the National and international contests. We hear the howl from the gallery that some joker may have luck with a couple of flights and win all the glory with a not-so-hot model. Since the rules have been modified a bit already, let's go a step further. Say it is ok with the majority that five or six flights are made and the times averaged out. Surely the expert modelers could have no objections. Five or six average flights of five minutes each are not a cinch in all weather conditions.

The problem of a calm weather and rough weather ship arises. Here the super modeler can display his wares. Building a ship for both types of flying robs Peter to pay Paul. The time element possibly comes into question. Five or six flights would take more time, we agree, but waiting from early morning till practically dark to make the last flights also runs the clock around.

"If the fellows don't want to get up and fly at the times specified, let them stay home," says the voice from the gallery. "Early morning and late evening flying simulates the conditions that will be encountered in Finland." Don't fool yourselves, men, thermals are out before sun-up and after sundown. Twilight contests have seen many a good ship "go over the hill!"

After plenty of hangar flying sessions, piecing together information, the Scrap Box came up with these notes from Ernie Wrisley and Harvey Patten: Go back to last year's Wakefield rules, is their number one suggestion; second, eliminate gear boxes, etc., and allow one rubber motor which can be changed at the contestant's wish; third, fly eliminations and finals under weather conditions prevailing throughout the day; four, allow six flights for total time, giving the more consistent ship the advantage. Old timer Dick Everett prefers three sets of eliminations adding the total times. The flyers with the total high times for the trio of eliminations would compete in the final eliminations. "Change the weight rules," states Dick, "each ship to have a minimum air-frame weight of five ounces and a three ounce limit on rubber weight." Fifth, stamp each component part of the ship with a number so no illegal changes can be made during competition. Sixth, number the spare ships in the same manner and mark them in regards to flight sequence in case the first ship is lost or damaged beyond repair. What do you think?

Ed Purcell of Chicago, Illinois, had a few choice statements to make about the doings of the Chicago Aeronuts. It seems that the lads are a bit gone on the Wakefields. Otto Curth was appointed as a committee of one to investigate the possibility of acquiring a traveling trophy for the eliminations. Otto astounded everyone by coming up with a sterling reproduction of the real mug. Ed tells us that the models making the highest times are mainly still air models but they could have a little trouble in a breeze. "It's quite a sight on a half-way decent day," Ed relates, "to see all the boys with gears waiting for the wind to die so they may happily clack along under power for two minutes or so. Purcell says midwesterners have to expect winds as a rule. Slow cruising, long-run jobs don't seem to have it then. Let's see someone refute this! The big *(Continued on page 4)*

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SCRAP BOX

(Continued from page 2)

fight out Chicago way is whether it is the wing or the prop which is most important in rubber. Some say one, some the other. All agree that we should improve our techniques in making each. The movement thereabouts seems to follow the choice of interchangeable nose blocks, wings, and stabs, so that comparative results may be obtained.

The Aeronuts packed in entries from far and wide with an event that caused quite a furor last year even though it lasted but one hour. The object was to see who could put in the most one minute flights in the hour. The winner was a CO_2 job with thirteen flights. This event was opened to all classes (age and plane types) and was a real break from the usual events, with D jobs competing against towliners, etc.

In Burgettstown, Pa., (near Pittsburgh) the Model Wings Airport is open every Sunday to all kinds of model plane addicts. Facilities are available for any club or organization wishing to sponsor a meet. R. C. events are held throughout the season. One week it may be a spot landing contest, the next a straight course run. The pylon flight, in which the winner is determined by the model which takes off, flys around the pylon and lands back on the runway in the shortest time, is a big favorite. Time begins when wheels leave the ground and stops as soon as they touch the runway after completing the course. Engine shut-offs are necessary. Duration flight under 100 feet is another event to test a pilot's ship and skill. The pilot keeping his ship in the air under 100 feet the longest period of time is the winner. This one might be a bit rough to judge. The idea is the brain child of the Pittsburgh Flying Circuits.

And in Detroit they've tossed T. V. out for radio. The Sky-Guys have a club transmitter and thirteen ships are flying or being built. (Those darned things are getting to be as common as AA's.) The club should learn quite a bit in the future and eventually put some new names on the winner lists at the coming radio meets.

Lawrence Conover of Iowa City, Iowa, has a few things on his mind about rules revisions. "Everybody's hot about the rules," he states. "Most people have apparently overlooked the most obvious and most important factor. The more simple the rules, the less chance for things getting out of order. The least conflict. The most complicated are the restraining codes (in free-flight) which deal with power loadings and weight. The reason these rules, complicated in their effect, still remain, seems to be only a reluctance to change to a modern viewpoint even though the new way might be much better. Perhaps they haven't been subjected to the idea. No loading restric-

tions! No wing loading, no power loading. Why should we have them?

"The original purpose of these rules," Conover goes on, "was to keep aircraft from flying away and also to provide equality for competition purposes. We now have dethermalizers. What more equality do we need than a standard rubber run, and the displacement classifications? Everyone would be on an equal footing. You could get out the old magazines and build some of those really fine designs that are now outdated only by convention. If you wanted to unearth the dependable old *Brown* or unwrap the mighty *Mighty Midget*, and sniff at the odor of luscious three-to-one mixture, you could do so. You could fly these ships at a contest and have a fair chance against the modern hot motors. Another and possibly more important result would be the opening of the doorway to really new and different designs. The progress of model aviation, and perhaps full scale aircraft, is being held back by the present restrictions. The modeler who builds the super too-light model soon finds that this type lacks consistency. The ability to make three (not one) official flights, wins the most awards. Until the average modeler is presented with rules which allow him to compose any arrangement, method, configuration for his 'dream ship', until then, he will never realize the tremendous field of progress and opportunities which lie so close.

"Since I have been working with Dr. A. M. Lippisch," Conover winds up, "I have been subjected to these new things. We aren't hampered by rules, and some amazing aircraft models fly about this area. I say 'we' because Dr. Lippisch is a real old timer at model building. He started about 1908 and is still at it. National rule changes would be required in some cases if these models were to compete on an equal basis with present day aircraft." Thank you, Mr. Conover.

Should the stunt pattern be changed to make things more interesting for the spectators? Our good friend J. C. "Madman" Yates jumped into the discussion with both feet when the subject turned to the 6′ altitude paragraph in the precision pattern. Stunts are supposed to start and finish at this height. This ruling, in our estimation, is disregarded more than any other in the flight pattern. At the end of this "jawbone" discussion we agreed that the smaller maneuvers under the 6′ altitude would make the pattern much more interesting as would make the word "precision" stand out in bold type. Did you ever sit at a judge's table and try to figure out whether a stunt pilot was flying at 6′ or 9′?

Now let's hear from the gentleman from Atlanta, Georgia, Mr. Bob Barton, of the Southern Aerolists. "My main interest, also the interest of the

(*Continued on page* 56)

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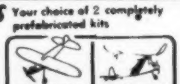

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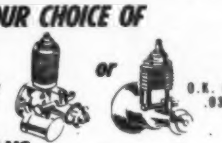

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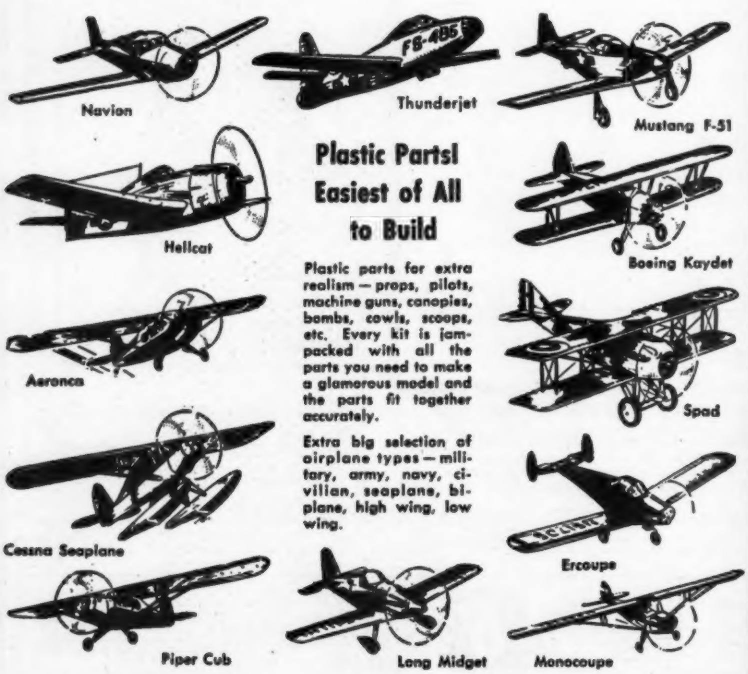

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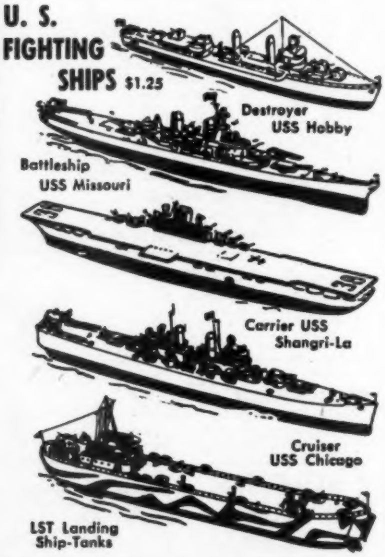

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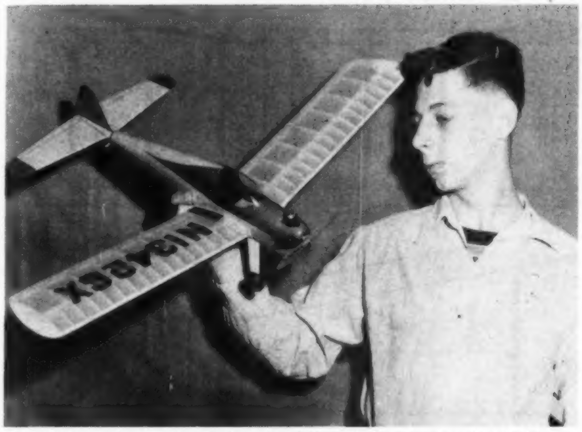
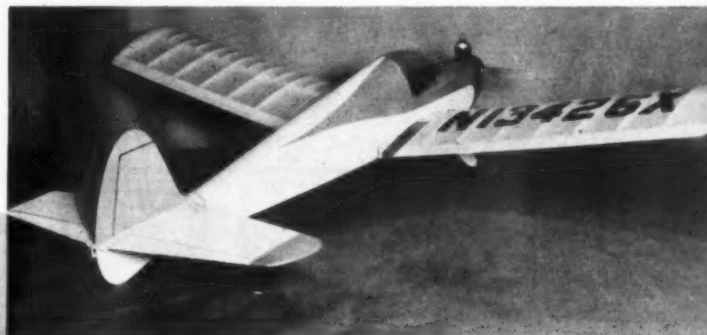
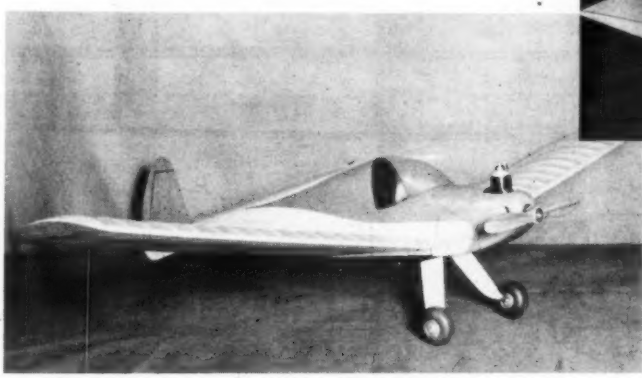


Sheet-balsa wing and tail for durability, built-up wing for lightness.





Above — One-piece wing, and tail, strap on with rubber. Decals add to the realism. Left — A cut-down six-inch commercial canopy, partly cowled engine, landing-gear leg fairings should tickle the sport fan. A Cub engine is shown but any .035-.049's may be used with equal success. Builders who prefer larger ships can enlarge the plans three times for an .099. Could be a nice rc job, too!

by HARRY WILLIAMSON

THE SCORPION

An excellent sport-type free flight job that combines realism, ruggedness and stability

▸ A low-wing free flight model is a rarity. For proof of this fact, build one yourself and take it out to the local flying area. At least six people will ask you what kind of U-control job you have, and a dozen more will bet anything that it won't fly. This is the experience we enjoyed with the original *Scorpion.*

This ship is a natural for excellent sport performance. Stability, realism and ruggedness are its main features. The climb is realistic; R.O.G. characteristics are very good; the glide is slow with a moderate rate of sink, and it can bounce off some big trees and come up fighting. What more can you ask for Sunday flying?

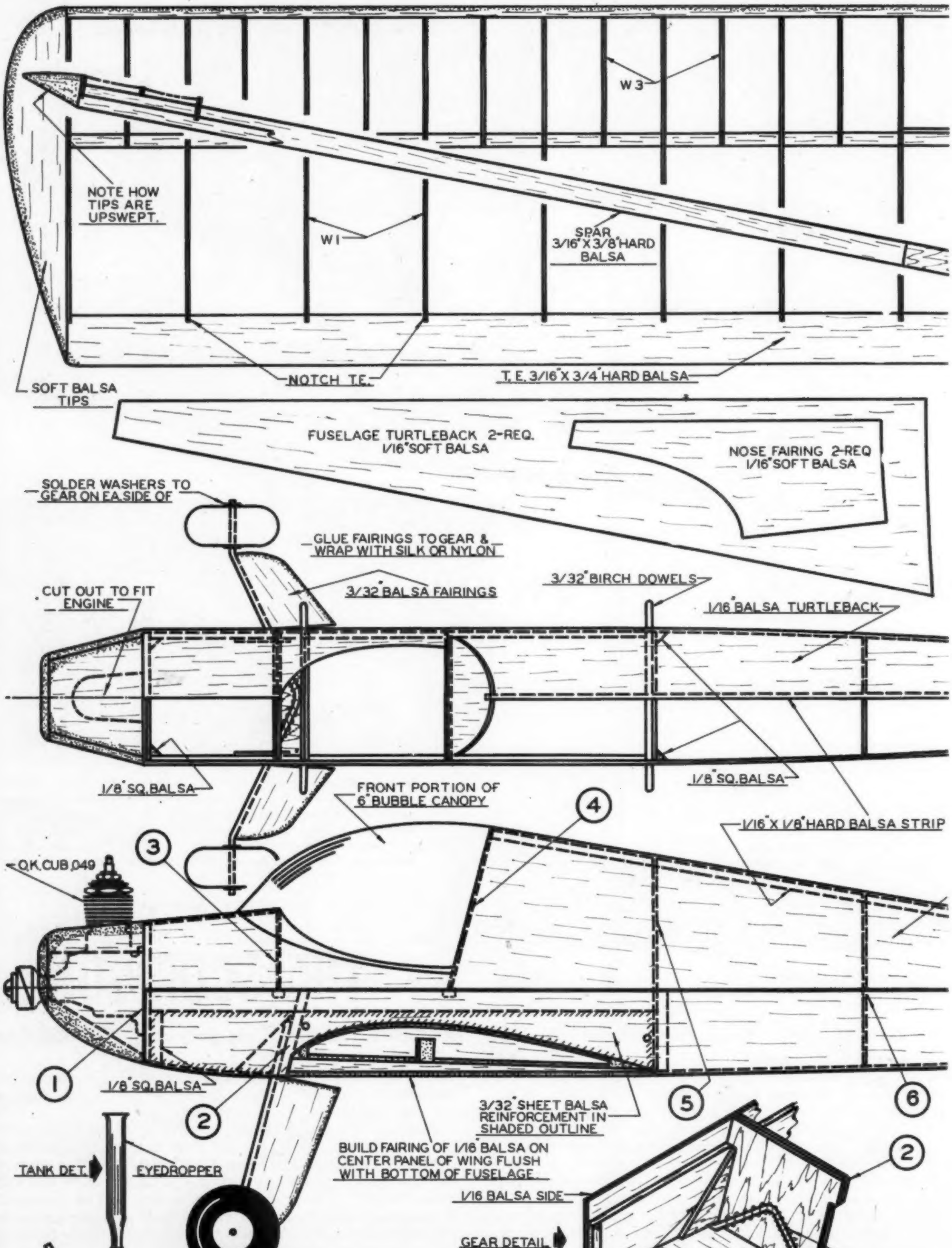
All sheet-balsa construction is utilized in the fuselage and tail surfaces, thus offering the best strength-to-weight ratio possible in a model of this type. The wing is quite conventional and of the most elementary but strong construction.

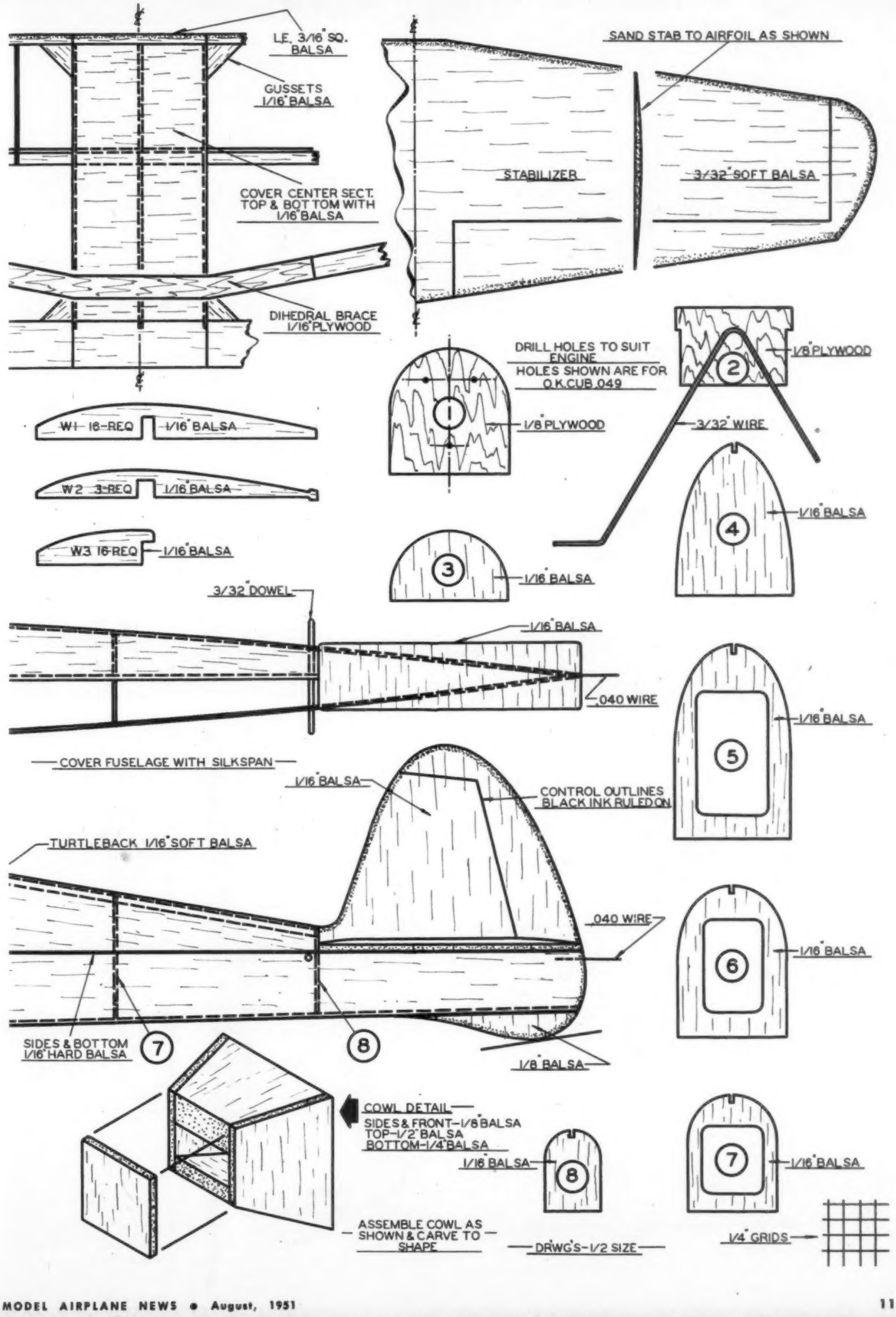
The drawings are half size for engines from .035 to .049 displacement. For those of you who want something for .099 engines, simply enlarge the drawings to three times the size shown on these pages.

Building the Fuselage: First, cut (2) sides from 1/16" hard sheet balsa, then, cut (2) nose reinforcement pieces shown in shaded outline, from 3/32" sheet balsa and cement them to the sides, making certain you have a right and left side. Cut out (1) each of all the formers shown on the plans. Cement formers No. 1 and 5 to the sides, align properly and allow to dry. Now cement the remainder of the formers in their proper location.

Drill holes in the firewall to suit the engine of your choice and bolt the engine in place. The nuts should be soldered to a piece of sheet brass which in turn is glued to the rear of the firewall.

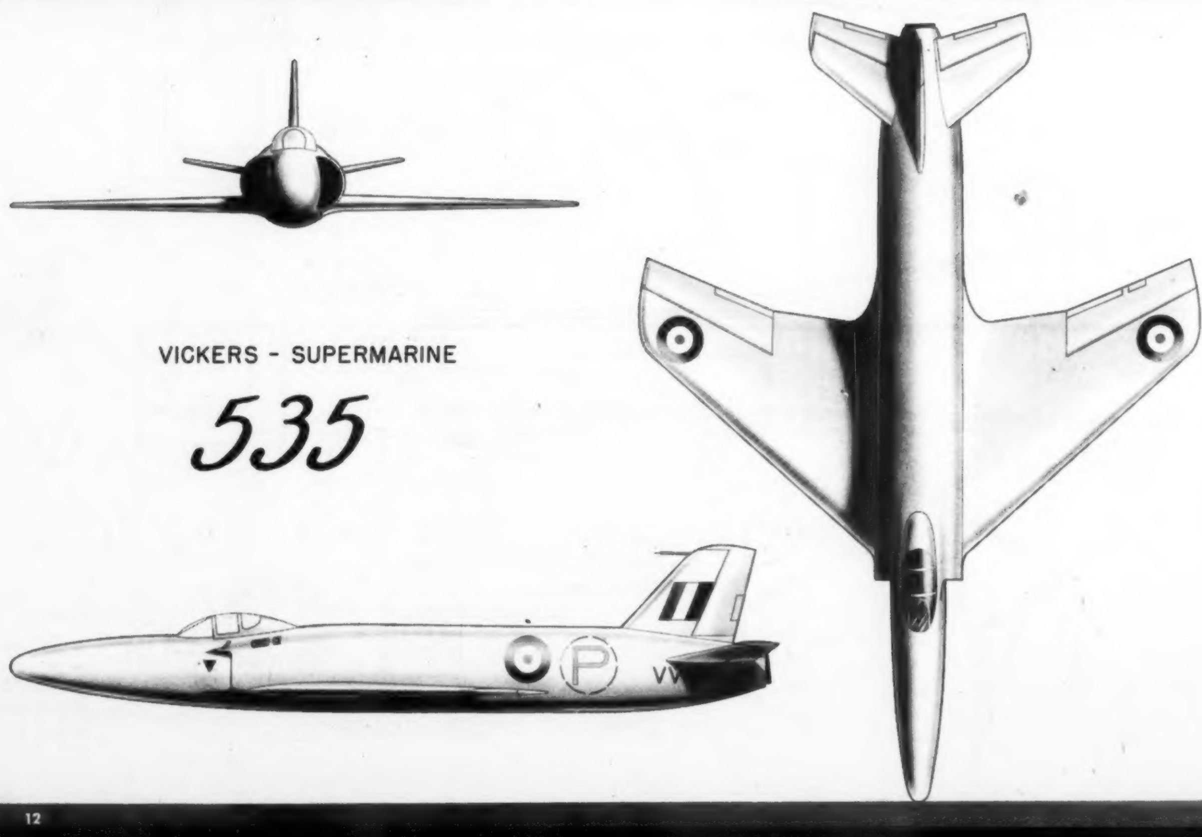
Bend the landing gear from 3/32" wire and sew to former No. 2 with soft copper wire and (*Continued on page* 52)


W3
NOTE HOW TIPS ARE UPSWEPT.
W1
SPAR 3/16" X 3/8" HARD BALSA
SOFT BALSA TIPS
NOTCH T.E.
T. E. 3/16" X 3/4" HARD BALSA
FUSELAGE TURTLEBACK 2-REQ. 1/16" SOFT BALSA
NOSE FAIRING 2-REQ 1/16" SOFT BALSA
SOLDER WASHERS TO GEAR ON EA. SIDE OF
GLUE FAIRINGS TO GEAR & WRAP WITH SILK OR NYLON
CUT OUT TO FIT ENGINE
3/32" BALSA FAIRINGS
3/32" BIRCH DOWELS
1/16" BALSA TURTLEBACK
1/8" SQ. BALSA
1/8" SQ. BALSA
FRONT PORTION OF 6" BUBBLE CANOPY
1/16" X 1/8" HARD BALSA STRIP
O.K. CUB .049
3
4
1
1/8" SQ. BALSA
2
5
6
3/32" SHEET BALSA REINFORCEMENT IN SHADED OUTLINE
BUILD FAIRING OF 1/16" BALSA ON CENTER PANEL OF WING FLUSH WITH BOTTOM OF FUSELAGE.
TANK DET.
EYEDROPPER
1/8" O.D. PLASTIC TUBING
1 3/8" DIA. VECO WHEELS
1/16 BALSA SIDE
GEAR DETAIL
1/8" SQ. BALSA
1/16" PLY GUSSETS
1/16 BALSA BOTTOM
DRILL HOLES IN FIREWALL & SEW GEAR IN PLACE WITH SOFT WIRE


L.E. 3/16" SQ. BALSA
GUSSETS 1/16" BALSA
COVER CENTER SECT. TOP & BOTTOM WITH 1/16" BALSA
DIHEDRAL BRACE 1/16" PLYWOOD
SAND STAB TO AIRFOIL AS SHOWN
STABILIZER
3/32" SOFT BALSA
W1 16-REQ 1/16" BALSA
W2 3-REQ 1/16" BALSA
W3 16-REQ 1/16" BALSA
DRILL HOLES TO SUIT ENGINE
HOLES SHOWN ARE FOR O.K. CUB .049
1
1/8" PLYWOOD
2
1/8" PLYWOOD
3/32" WIRE
3
1/16" BALSA
4
1/16" BALSA
3/32" DOWEL
1/16" BALSA
.040 WIRE
5
1/16" BALSA
COVER FUSELAGE WITH SILKSPAN
1/16" BALSA
CONTROL OUTLINES BLACK INK RULED ON
TURTLEBACK 1/16" SOFT BALSA
.040 WIRE
6
1/16" BALSA
SIDES & BOTTOM 1/16" HARD BALSA
7
8
1/8" BALSA
COWL DETAIL
SIDES & FRONT—1/8" BALSA
TOP—1/2" BALSA
BOTTOM—1/4" BALSA
1/16" BALSA
8
7
1/16" BALSA
ASSEMBLE COWL AS SHOWN & CARVE TO SHAPE
DRWG'S—1/2 SIZE
1/4" GRIDS

No. 9—Chase XC123

No. 10—Supermarine 535

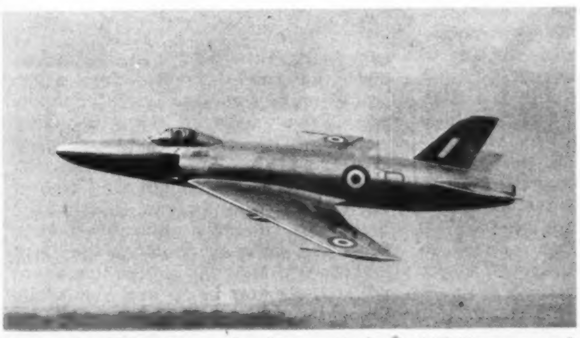


Triple play from glider to props to jets gives America her first jet transport, Chase XC-123A, four 5,200 pounds thrust turbines, in the 47 pods.

planes in the NEWS

by DAVID ANDERTON

It's been an exciting month, with America's first jet transport taking to the air; RAF's latest jet, Bristol's copter, and others.



Supermarine 535 has been ordered in quantity by the RAF. Nene-powered, with afterburner, fighter may take the powerful Avon. Four cannon.

British European Airways will operate Bristol 173 helicopter, between Birmingham, London, by 1953. Two Alvis 550 hp engines, 142 top.

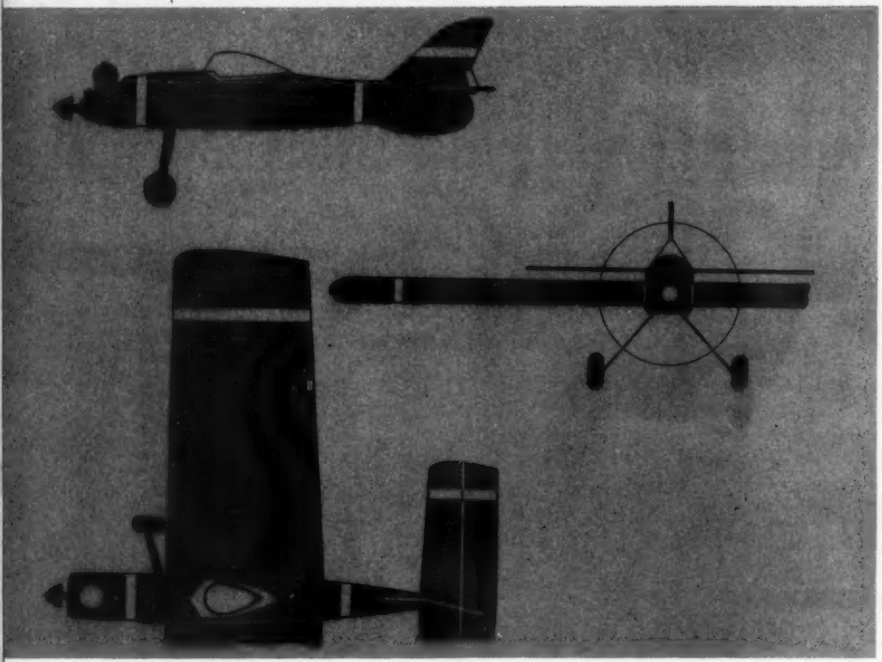
▶ Someone has finally done something about the appalling lack of a jet transport in the United States. Without waiting for government handout or loudly propagandizing in favor of same, Chase Aircraft Co., Inc. has put together the first U. S. jet transport. It's not as pretty as the *Comet*, and it wasn't designed as a jet job from scratch, but it's here now and it flies.

And there is another unique feature about the Chase *XC-123A*. It started life as a glider. After this phase, it showed up with two Pratt & Whitney R-*2800* engines slung under the wing. In this guise, it was evaluated as an assault transport against the Fairchild *C-119* and Northrop *C-125*. (The evaluation created quite a hassle which included statements by the Army that they wanted to know what was going on—they wanted the Chase and why wasn't the Air Force ordering it for them.)

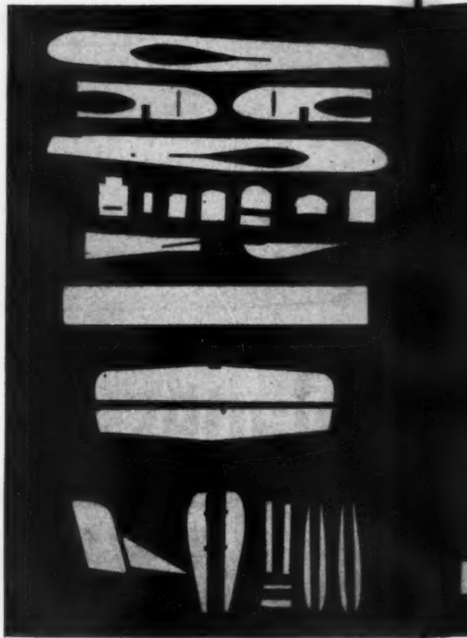
So a second honor goes to the *XC-123A* for being the first aircraft in the world which started out as a glider, made the transition to piston engines and eventually to jet engines without any major changes in the basic configuration.

Power comes from four General Electric *J-47* engines, rated at 5200 lbs. thrust each. Engines are pylon-mounted under the wing in two *B-47* pods. On the first flight, the big craft got off the ground in something around 1000 ft., and blasted up at about a 35-degree climb angle The company predicts that after a little more experience has been gained, the jet variation will be able to perform landings and take-offs just about like the piston-engined sister plane, the *YC-123*.

We're showing a three-view of the jet job this month, with an extra detail spotted in showing the piston engine installation. Pertinent dimen- (*Continued on page* 40)



Model Airplane News believes that an honest series of kit report articles can be written. For true reader service, these reports will be prepared only after a kit has been constructed and tested in flight.



we test } the baby barnstormer

by DON GROUT

▶ The *Baby Barnstormer* is designed primarily as an AA stunt model that, despite its small size, will do the complete pattern with ease. Our test model proved a good, stable flyer. If you are interested in trying a few maneuvers, half the answer is having a plane that "can."—The *Baby* can!

This plane is designed for the .049's which is the ideal size, but with the construction and design, an .035 or .039 should kick it around without any trouble if you keep it light and go easy on the dope. Don't hesitate on an .065 or .074 either; it has the wing area and flyability to take it.

The wing span is 23-1/2", average wing chord about 5-1/8", total area 118 square inches, and the wing section (widest part of rib) about 15 per cent of the wing chord, all of which makes for good area and lift. Length overall is 15", less spinner shown, and the weight is given as "approximately 4-1/2 oz." Our test model weighed in at 4 oz.-8 grains, less tank, prop and engine; and just under 6 oz. complete and ready to fly.

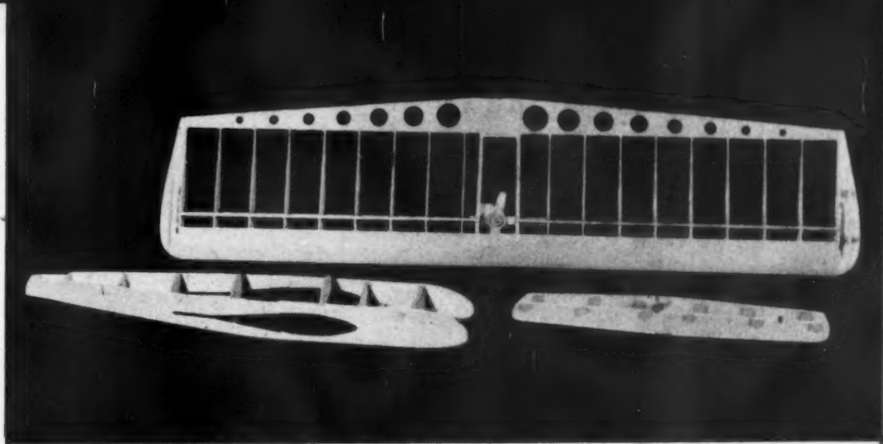
The kit is well worked out for lightness and easy construction. All parts necessary are die stamped and they fit with practically no sanding and shaping. The spars, wing planking and tail are selected wood which is the key to strength and fewer repairs.

For anyone who has built the A-B, B-C *Trixters* or *Barnstormer*, the *Baby Barnstormer* plans are equally detailed. For those that haven't, there's enough information in the full size layout and detailed drawings in themselves to build the ship without the written instructions. The answers to 99 per cent of the questions you might have on construction are there if you'll just study the plans. This kit details the Jim Walker U-Control system.

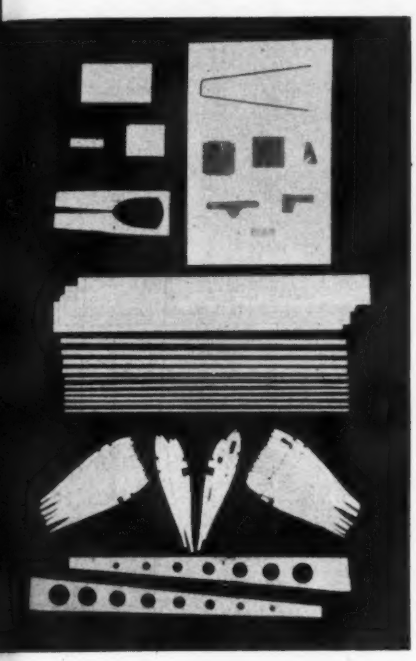
Notes on construction will be brief and confined to certain points. If you feel that a plywood bellcrank might wear a little quicker than metal, a bushed bellcrank is just so much insurance against loosening bellcranks and crack-ups. We had an old *Veco* small bellcrank and cut it down to the size in the plan, bushed the bushing with two pieces of brass tubing, one 5/32" o.d. and one 1/8" o.d. inside—that to bring the hole size down in order to use a smaller bolt that wouldn't weaken the main spar. Kap-Pak makes a bushed *Infant* bellcrank No. 10 that is just about the right size.

Flexible lead-out wires were used which were ends of an old set of 70-foot lines cut down to 60's. It was not necessary to cut the opening in the leading edge planking as called for, which would make for more strength in the wing. It's a good idea to watch out for warping of the trailing edge, particularly if you like to put on your covering wet. If you're an old free flighter you'll know what I mean. In using the tissue wet, I found it advisable to keep the wing weighed down at the front and the trailing edge pinned to a board while the water dried and also while being doped. Put a coat on one side, let it dry, then work the other side the same way—back and forth, and it comes out fine. If you are a counter-clockwise flier, as I am, and want to convert the model keep in mind: 1. Draw in on the plan, the four center ribs offset to the opposite side of the center line before starting the wing layout (don't forget on this ship the inside wing is larger than the outside); 2. Reverse trailing edges; 3. Reverse the ribs, ribs with the controline holes on the opposite side; 4. Reverse the bell-crank and controline tubes and run the control lines out the opposite end of the wing; 5. Reverse the outboard weight; 6. Reverse nose laminations with fire wall notches and fire wall so the engine will be offset toward the outside of the circle; 7. Reverse bulk-

Designed by Lew Andrews for Paul Guillow, the Baby Barnstormer for AA stunting proves capable of the full AMA stunt pattern when powered with an .049. Valuable building, flying hints included.



Stuntability is largely due to light structural design, generous wing area, thick stunt-type rib.



Left, above — Kit contents reveal extent of die-cutting. Note lightening holes in trailing edges. Above — Finished test model made from random kit. Kit is clockwise flier, though shown counterclockwise.

heads No. 4 and No. 5 so the holes for the pushrod will be on the opposite side of the fuselage; 8. Turn the elevator over and glue the horn on the right side; 9. Reverse the angle of the rudder; 10. If you make the gas tank shown, reverse the slant at the back and the tubes so it draws from the opposite side. For clockwise flying the *Baby Barnstormer* is all set.

In the installation and bending of the pushrod, I found it easier to omit cementing the stabilizer to the top of the fuselage (first sentence under "stabilizer and rudder assembly") until the pushrod is bent to shape and the bellcrank is in place (first paragraph in "Final Assembly"). Then hold the tail in place—measure and "bend pushrod to fit hole in horn," slip the pushrod through the horn and when the stabilizer is then glued on, allowance can be made for any errors in bending the pushrod by sliding the whole tail forward or back to compensate. Also if you wait until this time to put the loops in the ends of the control wires, you can also compensate for any errors in bending the pushrod. Be sure the control wires are even when the tail is neutral. This procedure will help in the accurate rigging of any controlliner and is (*Continued on page* 44)

Test model just before release. Picture taken after 20-odd flights, including full-stunt pattern routines. Model may be flown on anything from .035 to an .074, but is ideal for the .049 class.

the scimitar

by LES BARTLETT
National Champion

For .099 power this standout free flight design is ideal for learning the fine points of flying, besides being an excellent contest ship. Placed in every meet it entered.

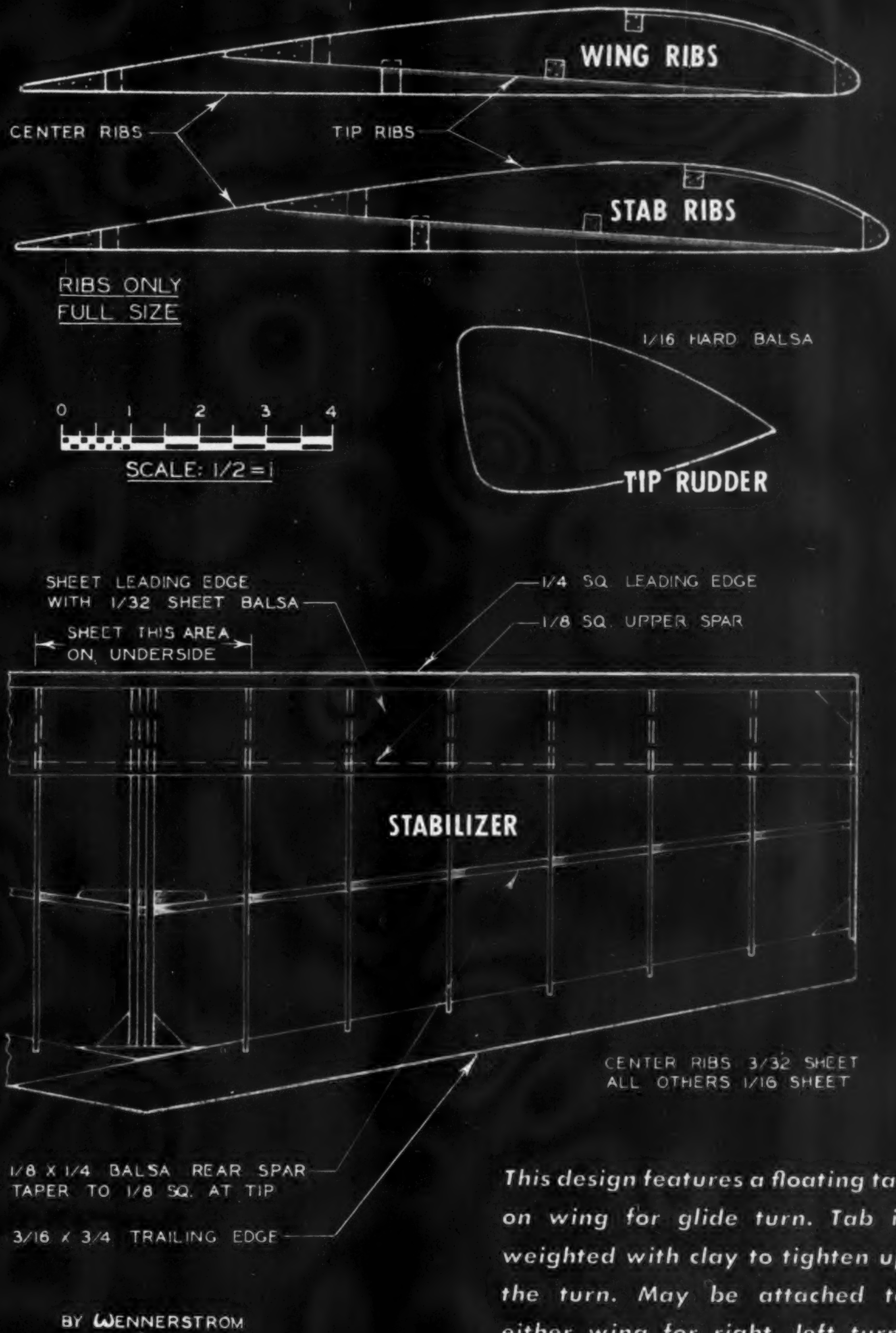
The emergence of the *Scimitar* was the result of several years of building and flying planes, of comparing ideas with other modelers, matching my planes with theirs in competition and, finally combining this experience and knowledge in a plane especially designed for contest flying.

It was several years ago, when, having shown an interest in model building and free-flight planes, my family presented me with an Arden .099 as a Christmas present. If this little engine could talk, it would tell quite a story. I could hardly wait to build a plane, so put together a towline glider wing and stabilizer, coupled with an original box-type fuselage and this mongrel, being of doubtful origin, unproven flying ability and unorthodox shape, was named the *Question Mark*. This ship, after a bit of adjusting and with the help of some of the free flight lads, proved quite a flier. In fact, it won my first trophy at the Aeroneers annual free-flight meet. Later, pontoons were set in place for a bit of R.O.W. practice.

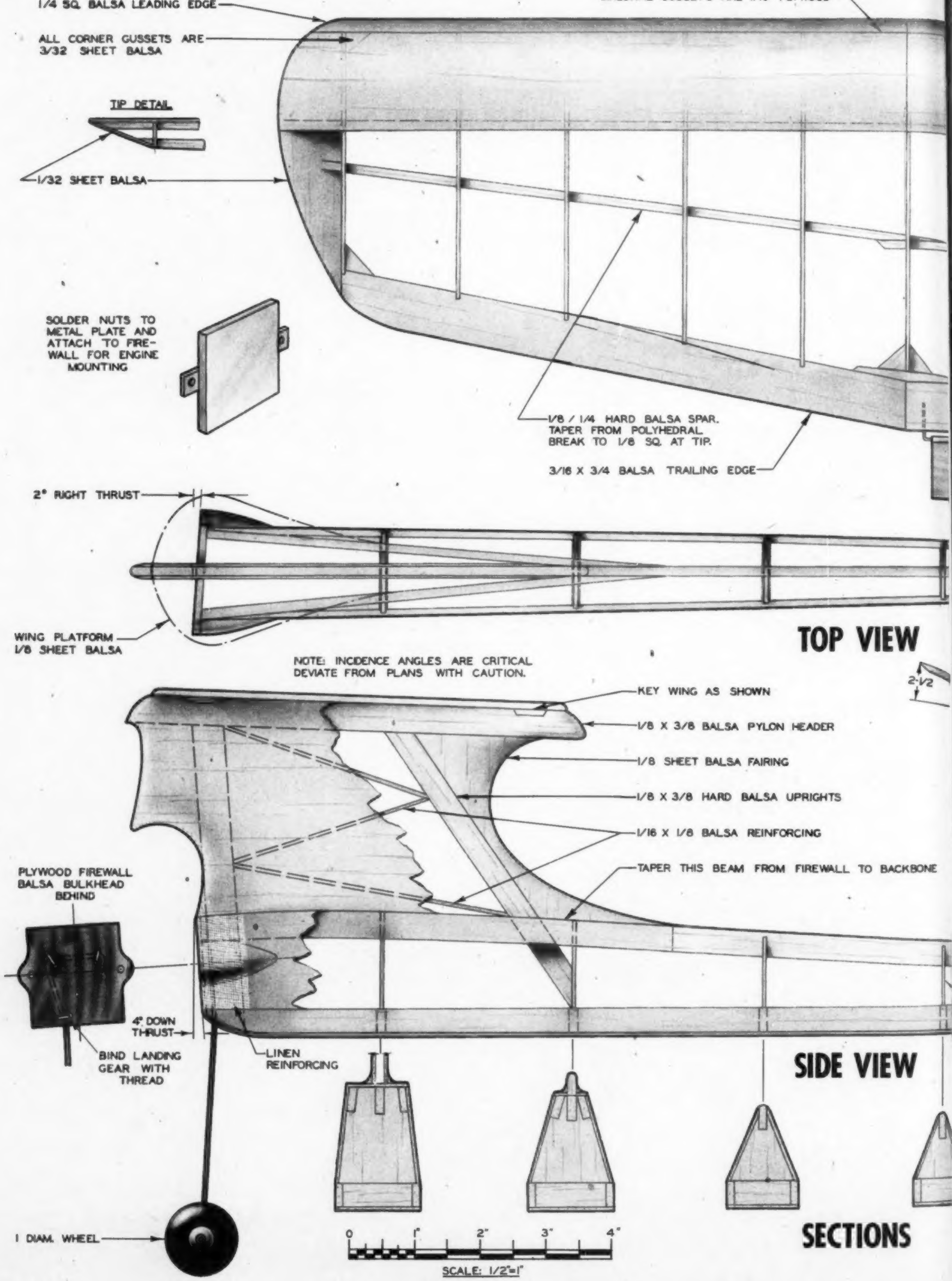
The next plane to house the .099 was a *Strato Streak* built from plans loaned by Denny Davis. Like any true free-flight enthusiast, I had the bad luck to lose a plane occasionally at a meet. Sometimes these "lost" planes turn up again at unexpected moments. And, so when the remains of my *Strato Streak* were found in a canyon near Gibbs Airport, the urge to design a new plane for the engine and timer, which were still in good condition, resulted in the *Scimitar*.

This plane is ideal for learning the fine points of flying, besides being an excellent contest ship. It is a comparatively simple plane to construct considering the streamlined design. Although originally designed for an Arden .099 engine, other .099 engines can be used to power the *Scimitar*. This model has placed in every meet in which it has been entered. At the San Diego Aeroneers Annual Meet held last year, the *Scimitar* performance won the Junior Sweepstakes and, at the Nationals in Dallas last July would have easily taken first place in Class A Junior if the plane had not been lost on the second official flight, as the official time for the first two flights came within about one minute of equaling the total of the three official flights for the plane that took first place.

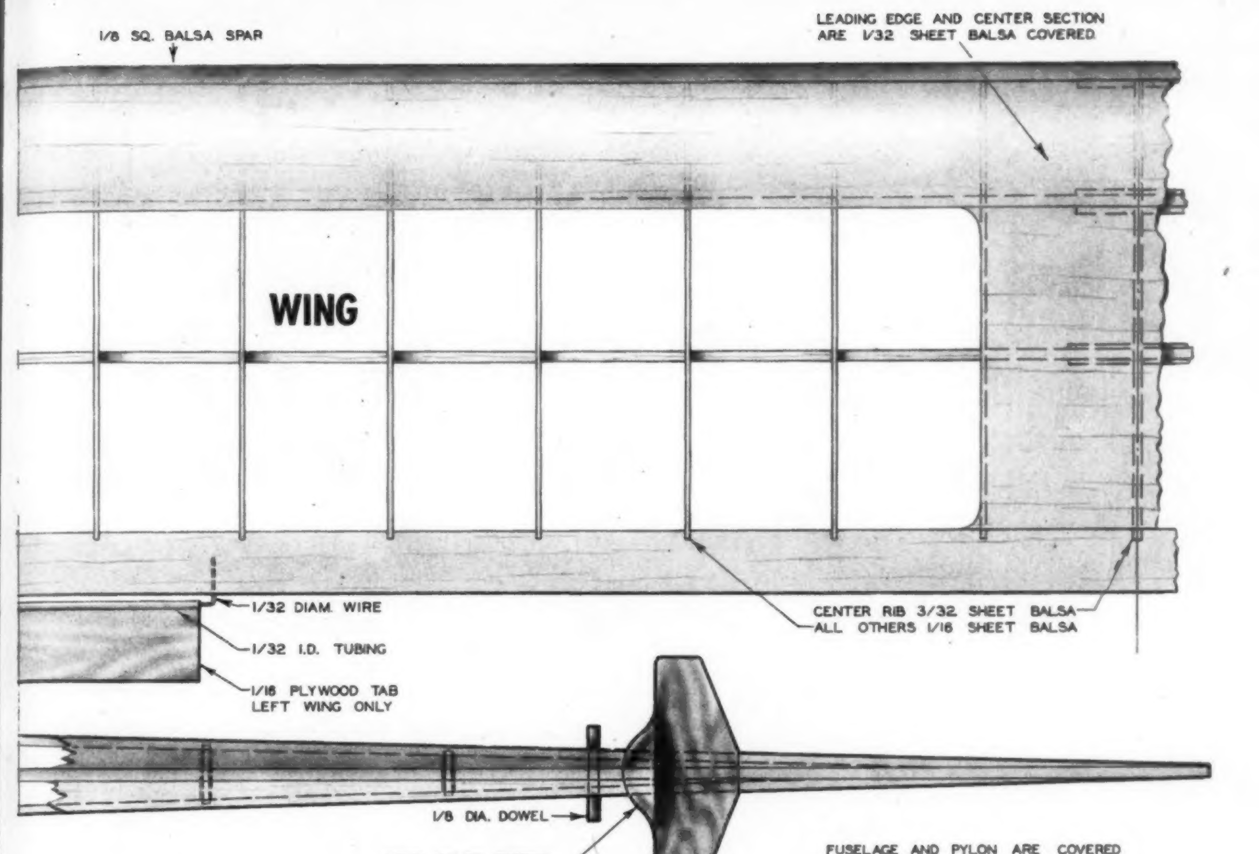
Dimensions of the *Scimitar* are (*Continued on page 51*)

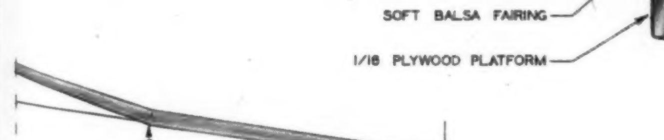


This design features a floating tab on wing for glide turn. Tab is weighted with clay to tighten up the turn. May be attached to either wing for right, left turn.



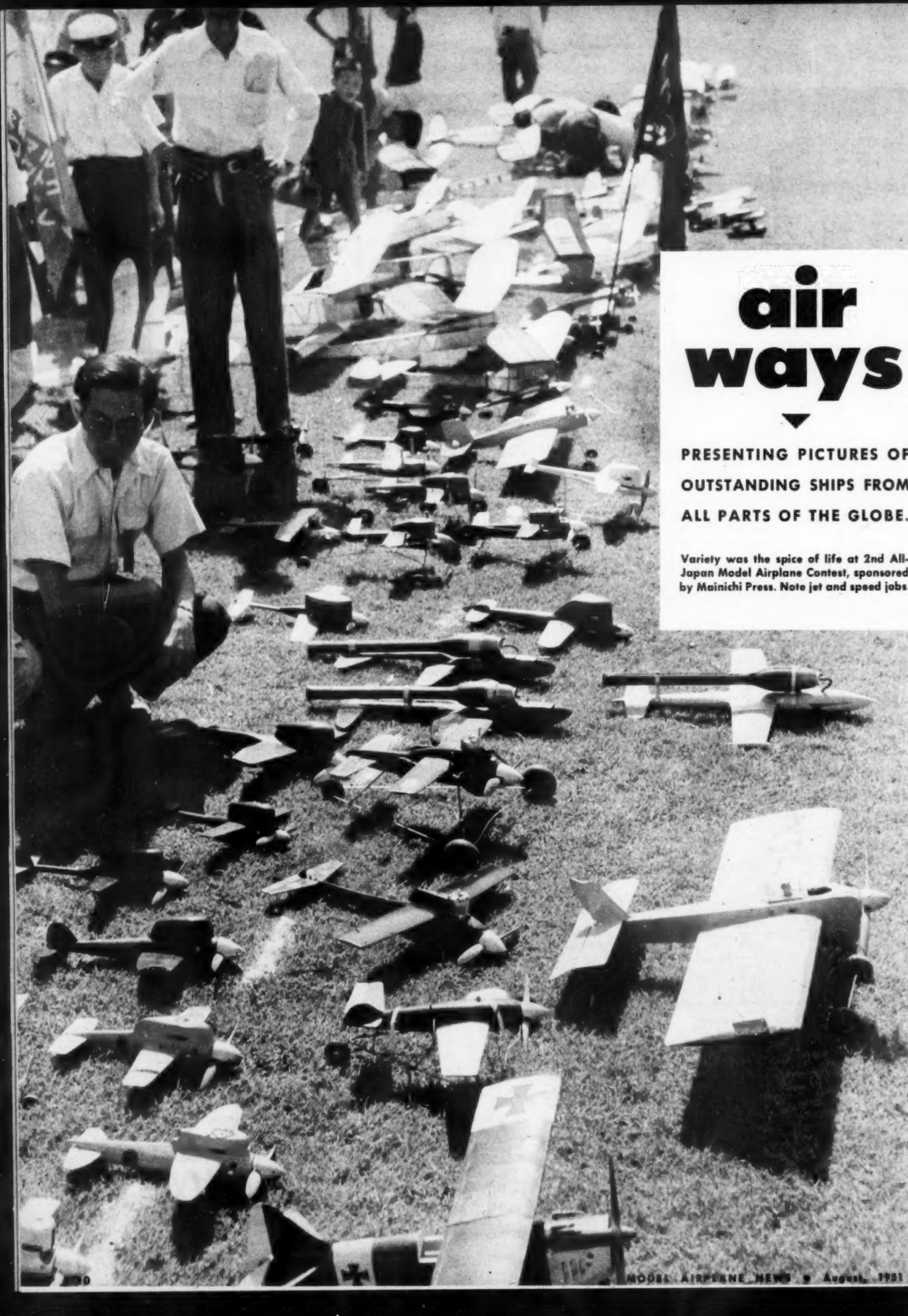
1/4 SQ. BALSA LEADING EDGE
ALL CORNER GUSSETS ARE 3/32 SHEET BALSA
DIHEDRAL GUSSETS ARE 1/16 PLYWOOD
TIP DETAIL
1/32 SHEET BALSA
SOLDER NUTS TO METAL PLATE AND ATTACH TO FIRE-WALL FOR ENGINE MOUNTING
1/8 / 1/4 HARD BALSA SPAR. TAPER FROM POLYHEDRAL BREAK TO 1/8 SQ. AT TIP.
3/16 X 3/4 BALSA TRAILING EDGE
2° RIGHT THRUST
WING PLATFORM 1/8 SHEET BALSA
TOP VIEW
2-1/2
NOTE: INCIDENCE ANGLES ARE CRITICAL DEVIATE FROM PLANS WITH CAUTION.
KEY WING AS SHOWN
1/8 X 3/8 BALSA PYLON HEADER
1/8 SHEET BALSA FAIRING
1/8 X 3/8 HARD BALSA UPRIGHTS
1/16 X 1/8 BALSA REINFORCING
TAPER THIS BEAM FROM FIREWALL TO BACKBONE
PLYWOOD FIREWALL BALSA BULKHEAD BEHIND
4° DOWN THRUST
BIND LANDING GEAR WITH THREAD
LINEN REINFORCING
SIDE VIEW
SECTIONS
1 DIAM. WHEEL
0
1"
2"
3"
4"
SCALE: 1/2"=1"





NATIONAL CHAMP LESLIE BARTLETT'S *Scimitar*

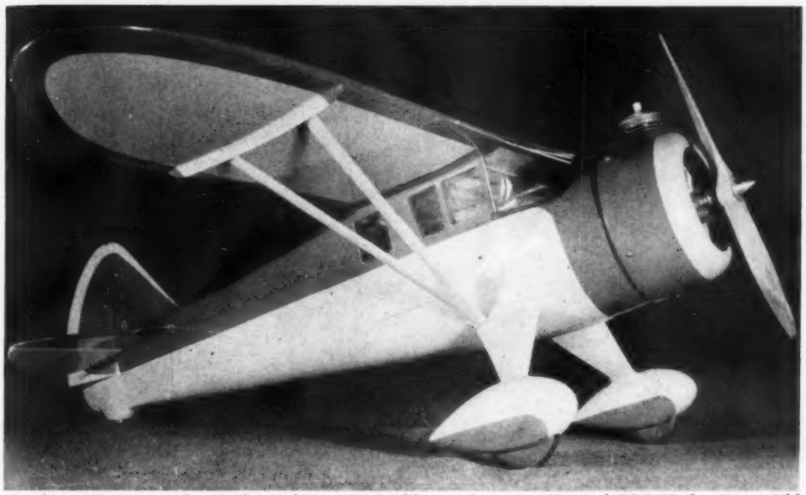
BY WENNERSTROM



air ways

PRESENTING PICTURES OF OUTSTANDING SHIPS FROM ALL PARTS OF THE GLOBE.

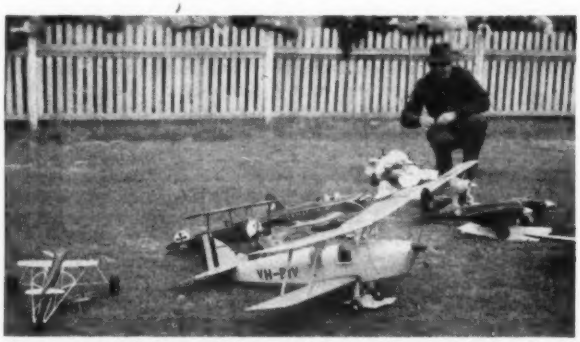
Variety was the spice of life at 2nd All-Japan Model Airplane Contest, sponsored by Mainichi Press. Note jet and speed jobs.



The $10 prize winner for workmanship, a 39 in. blue and orange *Howard DGA-11*, by Marty Lihl, of West New York, N. J. *Super Cyclone*-powered, it has won first place in several beauty events.

Winner second place subscription is this *Able Mable*, from MAN plans Clifford Hampson, Jacksonville, Fla.

F.A.S.T. Club Racers: #8, Conrad; #61, Lawrence Williams; #32, Granger Williams; #13, Rudy Panko; #9, Borden; #5, Palethorpe; #3, MacBrayer, #6, Storey.



Group of control line scale jobs at last Australian Nationals. The DH *Tiger Moth*, foreground, is popular international free flight scale, too.

Three-quarter span slots feature 77 in. radio job built by Henry Schiffer, Meriden, Conn. Throttle control, *Aerotrol* radio, Ohlsson 23 glow.

Lockheed *P2V*, N. H. Lee and R. S. Moore, U. S. Navy, takes third place subscription. Took 450 hours, spans 42 in., weighs 9-1/4 lbs., on Fox .35's.

F-51D control line, Joe Nowak, Tom Albrecht, Parks Air College, East St. Louis, Ill., has flaps, retracting gear. Rudder turns if lines slacken.

Above—In any country some modelers strive for an original touch, though it is still the familiar pylon. Left—Typical wing-on-fuselage continental free flight.

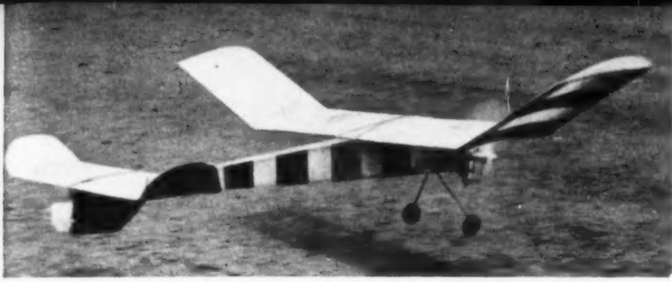
the European angle

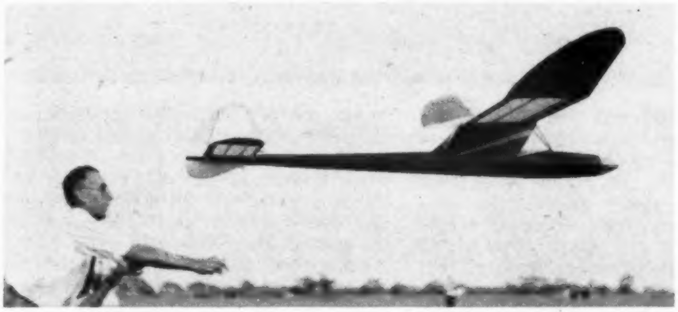
Winding a light-weight rubber job—note triangular fuselage. Popular in Britain, these lightweights are unknown in America where there is no event.

To get a true picture of the types of contest models popular in Great Britain and the rest of the European countries you must remember that these have been influenced by two conflicting trends. Britain apart, all the European countries use metric units, and their contest specifications are largely produced by the Federation Aeronautique Internationale (F.A.I.). Models must conform to these specifications to be eligible for official world's records, the F.A.I. controlling conditions for all world's records in both the model and full size spheres.

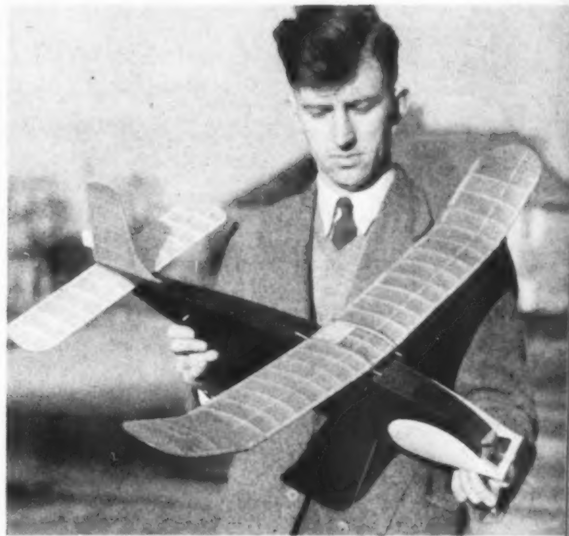
Until comparatively recently, Britain has largely stood apart from F.A.I. model specifications. Like America, she has developed her own contest types and contest rules and these have, to a large extent, been influenced by American practice. These British rules, however, have always been less restrictive than comparable American specifications. Apart from the famous "fuselage formula" (minimum fuselage cross section not less than over-all length times length divided by 100) and the restriction of maximum tailplane (stabilizer) area to one third of the wing area, there have been little or no wing-loading or power-loading rules, except in the case of isolated contests. About the only tight specification, in fact, has been the Wakefield. Nor have there been any definite classes for the same type of model. Three classes have been current for free flight power (gas) models since the war: Class A, motors up to 2.5 cc.; Class B, motors 2.51—5.0 cc.; and Class C, motors 5.01 to 10 cc. All the National gas competitions have combined the three classes as one, and this practice still continues.

Another thing that must be remembered is that the manner in which we British run our National contest program is very different from American practice. We are a compact country, and if a major contest is run in any part





Top—Simple layouts have proved small threat to king pylon. Above—H. Crouch, of England, test launches an 84" towliner, a very popular type of machine abroad.



Lightweight rubber jobs run around 130 sq. in., seldom have more than 1/16" sq. longerons. Still-air duration runs about 2:30.

by RON WARRING

Many interesting and important machines flown in England and on the Continent are uncommon in America. A noted British designer outlines their designs and features. The first of two parts.

of the country, it is not too difficult for modelers everywhere to get to it. The majority can travel there and back the same day.

However, we have always included a number of decentralized contests in our National program. This means that each club flies off this particular contest on its own flying ground on that particular date. All the results are then sent in to headquarters—the Society of Model Aeronautical Engineers (equivalent to your A.M.A.)—and the winners and winning times subsequently announced. These decentralized contests became even more popular during the war years when traveling was difficult, and to make things even easier during that period, many of our already open rules were relaxed still further. What was called an open type of contest was introduced. When there was a rubber contest, any type of rubber model could compete. Similarly any type of glider could compete in an open glider event. Gas flying was banned during the war, and controline and radio control was yet to come.

This move has had a considerable effect on post-war development, for the legacy of the open contest is still with us. We do not group our contest into age groups and so open here is very different to your own meaning of an open contest. It means, simply unrestricted, as applied to the model specification.

When conditions returned more to normal after the war, both the open classification and decentralized contests came in for a lot of criticism. But to balance the number of modelers who heartily condemned both, or either, an almost equal number were in favor of continuing with rules limited to the very minimum. The battle still continues, but gradually the open type of contest has been pushed further and further into the background and decentralized

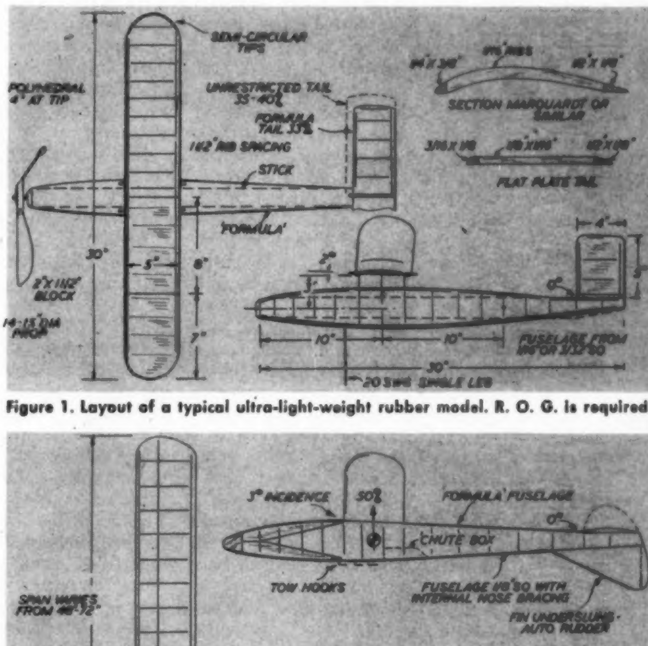


Figure 1. Layout of a typical ultra-light-weight rubber model. R. O. G. is required.

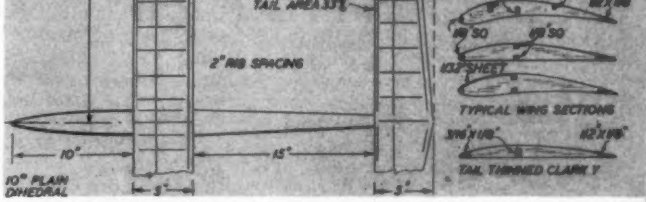
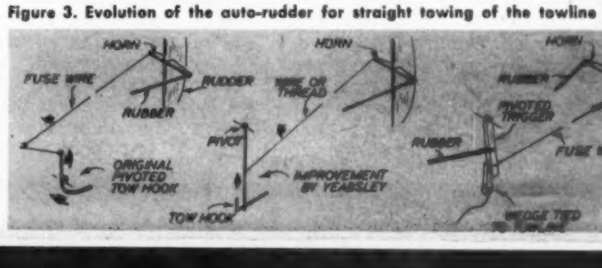


Figure 2. Lightweight gliders needed loading up to rubber weight for good glide

Figure 3. Evolution of the auto-rudder for straight towing of the towline glider



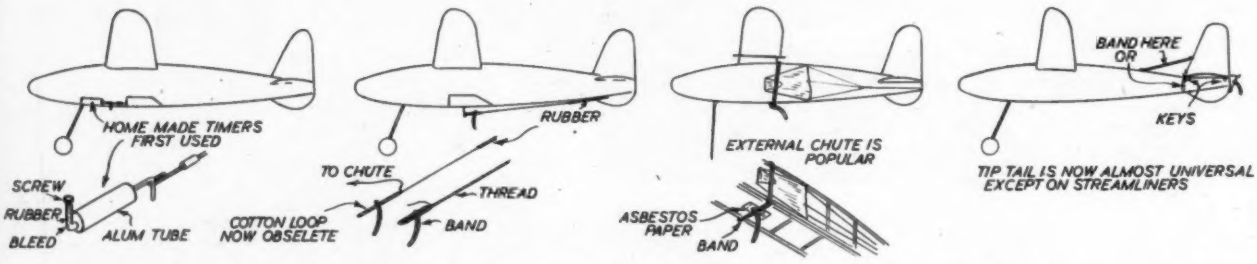


Figure 4. Dethermalizer development began with home-made "airdraulic" timers, switched to fuse and drag chute, finally the tip-up stabilizer.

flying restricted to the less important National events. All the important contests are now run at a particular venue (centralized) or simultaneously in several areas (semi-centralized). In view of the large number of National events per year, the traveling involved would be prohibitive if each were centralized. The semi-centralized system was adopted to overcome the criticism that there was no control over the running of decentralized events, and at the same time restrict traveling to local distances for at least half of the more important events.

We can well pause at this point, for the open contests produced two definite model types which are still characteristic of British practice—the ultra-light-weight rubber model and the light-weight glider. It is a curious anomoly that with these unrestricted model specifications the fuselage formula was still retained. There were a few completely unrestricted open contests where the fuselage formula did not apply and the resulting designs were then called stick models, but these were in the minority.

A typical ultra-light-weight rubber model is shown in Fig. 1. All models of this type follow very much the same lines—wing area around 130-150 sq. in., parasol wing, single-blade folding propeller, "whisker" undercarriage (bowing to necessity, since contest rules still called for an R.O.G. launch) and simple, very light structures. Even larger models of this type seldom had longeron sizes greater than 1/16 sq. A 50-50 balance of rubber weight and airframe weight was generally achieved.

Trim typical with the ultra-light-weight rubber model is a fast spiral climb to some 300', the prop run generally being about 40 seconds. Still-air duration probably averages around 2-1/2 minutes but under thermal conditions, once up they proved very reluctant to come down again!

The stability of these designs is really excellent. They will roll rapidly out or a stall or a loop, if slightly out of trim, and continue climbing. Their greatest enemy was wind. Our average contest day is usually blessed (or rather cursed!) with plenty of wind and the mortality rate under such conditions is usually high—not so much during launching and flying but on being blown about after landing.

So successful was the ultra-light-weight rubber model—it was easy to build, easy to trim and took very little material—that the glider fans tried similar light-weight models for tow-launch contests. With a maximum line length of 300' permitted, once towed up to this height they should float around almost indefinitely. Strangely enough, however, this did not work out. The really light gliders were not a success. They seemed to sink down rather than glide and times were low. The optimum glider loading for top performance was found to be higher than the minimum that could be achieved. In other words, taking an ultra-light-weight rubber model, removing the prop and motor, and converting it into a towline glider, performance would be inferior to that of the same model loaded up to its original (rubber model) weight. The ultra-light-weight rubber model, in fact, appears to have hit the minimum loading figure for good duration flying.

The successful light-weight glider model which grew out of these developments was quite different in layout to its "open rubber" counterpart. Some retained a parasol wing (often with a diamond fuselage), but the main trend was towards a straightforward high-wing design with parallel chord, high aspect ratio wings and tailplane (stabilizer) and simple slabsided fuselage—Fig. 2. Wing area was generally between 250 and 300 sq. in. with a total weight of around 4 ounces.

Performance was apt to be inconsistent in windy conditions and many designs suffered from towline instability in any breeze. In calm, however, a four minute flight was commonplace from a 300' towline launch, with the same happy knack of taking advantage of any thermal lift as displayed by its rubber model counterpart.

One fault common with gliders of this type was that, generally, to get a straight tow the model had to be trimmed for straight free flight. With any drift, models went out of sight too rapidly and auto-rudder devices became commonplace. Some modelers preferred, and still use, offset tow-hooks, but an auto-rudder is generally more favored. The writer was responsible for many of the original developments in this field and its evolution is described briefly in Fig. 3.

At about the same time as these two "open contest" types were reaching the peak of their development, dethermalizers were also beginning to become known almost all, initially, of the drag-parachute type. Norman Lees and Bob Copland (both members of the 1939 British Wakefield team visiting America) were amongst the first to experiment with dethermalizers, followed by the writer. All three of us used home-made "airdraulic" timers. Other modelers using the drag-parachute adopted the simpler fuse timer, which has subsequently become almost universal. Some dethermalizer developments are sketched in Fig. 4.

Now these developments—the two model "types", the auto-rudder and the standard dethermalizer set-up—are important, for their influence has persisted. The main contest interest in Britain is still rubber and glider, except at our Nationals when free flight power (gas) tops the entry lists in numbers. Our Nationals, however, is a comparatively recent innovation, the first one being held in 1948. Strangely enough, too, the Nationals has not yet promoted the same interest as many of our other important centralized events.

Take a cross section of the fellows flying rubber models at an average meeting today and half will still be flying ultra-light-weights. Similarly with gliders, for open contests in these two categories are still featured. The rubber model type has hardly changed at all. Loading has possibly increased a little; a slightly more robust airframe and carrying more rubber. Performance is very much the same. The light-weight glider model, however, has grown in size and changed somewhat in design.

Competing in all open events, however, is a greater proportion of specification models. During the past three or four years the S.M.A.E. has grown closer to the F.A.I. and International contests between the various European countries have become quite numerous. Prominent in this has been the Wakefield itself, since it left America in 1948. In order to get some satisfactory standard for model specifications between these various countries, it is only natural that more and more of the F.A.I. recommendations have infiltrated into British, rules and specifications. Over the last two years, at least, quite a number of the British National contests have been for models

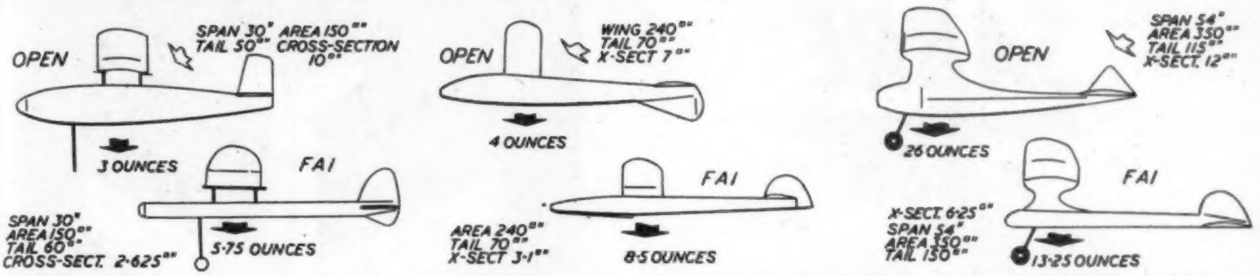


Figure 5. The international F.A.I. rules produced the types shown in the lower row, which are compared with British developed competition types shown in top row.

to F.A.I. specification.

Briefly these F.A.I. rules can be summarized as follows:

Overall size. Total area of the wings and tail surfaces must not exceed 16.14 sq. ft. (150 sq. decimetres). Maximum weight must not exceed 11.023 lb. (5 kilogrammes). *Areas.* The total or combined area of the wing and stabilizer is taken in computing loadings, etc. *Loading.* A minimum wing loading of 3.93 ounces per sq. ft. total area is specified for all models. A higher loading can, of course, be used provided this does not exceed 16.38 ounces per sq. ft. (total area again). Converting these figures to more useful standards, the minimum loading is 2.73 ounces per 100 sq. in. total area—say 2-3/4 ounces per 100 sq. in. This loading rule applies to all types of free flight models—rubber, glider and power (gas). *Cross-section.* This, again, is based on total wing area. For rubber and power (gas) models: minimum fuselage area equals total area divided by 80; for gliders: minimum area equals total area divided by 100.

Now either of the two standard British open contest types could be brought up to F.A.I. specification by increasing the loading, but the change would not necesarily produce the best type of F.A.I. model. One of the most striking features of F.A.I. rules, in fact, is the very small minimum fuselage cross section required, and so a model carrying a bulkier fuselage "to S.M.A.E. formula" would be penalized by the higher drag. Furthermore, the F.A.I. rules allowed tailplane (stabilizer) proportions to be increased, relative to the wing area, for better stability, on rubber (and gas) models, at least.

Yet the ultra-light-weight rubber model was (*Continued on page* 44)

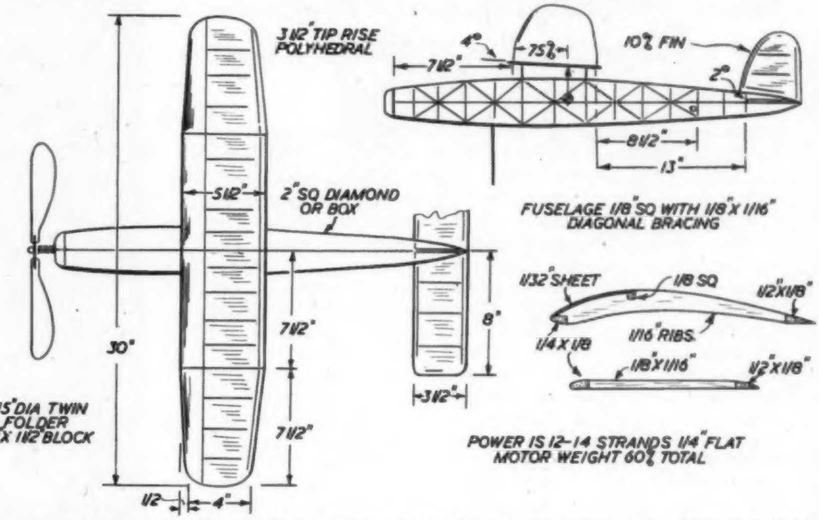


Figure 6. The F.A.I.-rules rubber model has produced a model generally similar to American stick design.

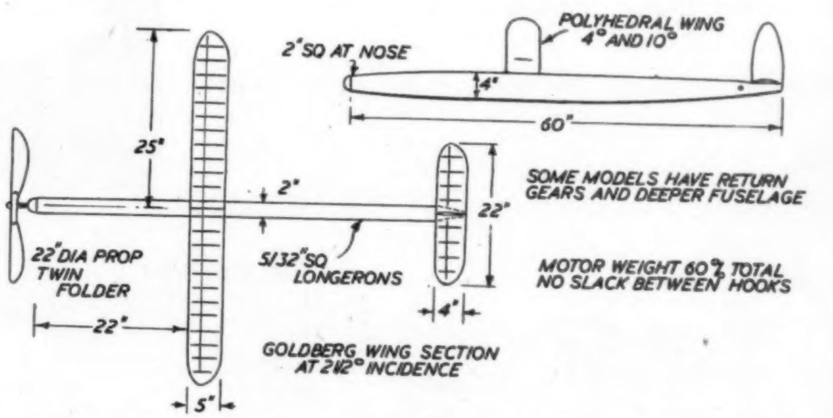
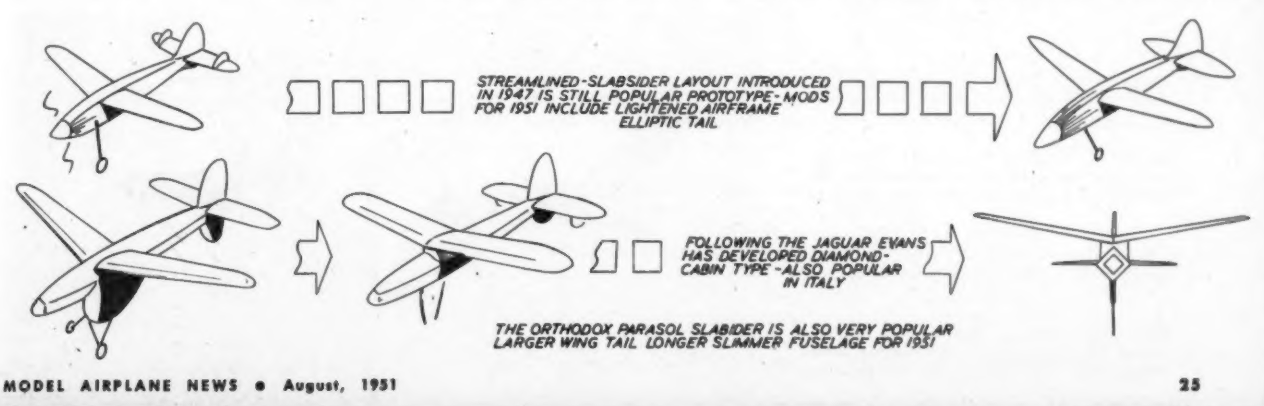


Figure 7. Italian version of F.A.I. model has gears; total rubber length about nine feet. Five feet long.



SABRE

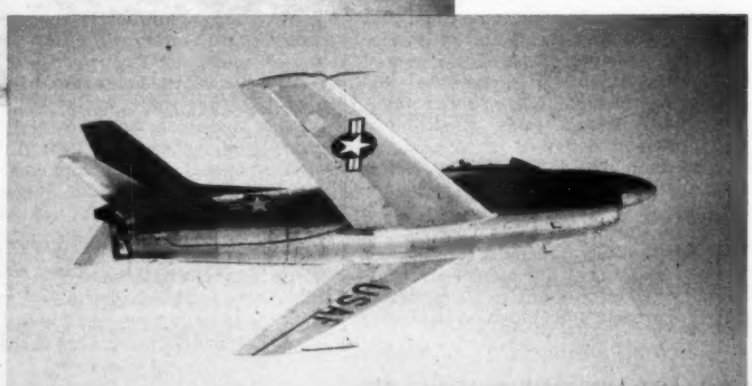
F-86D

More powerful and faster than earlier Sabres, the F-86D features an afterburner and a Sunday punch of 24 2.75 in. rockets.

▶ Korean victories have made North American's *Sabre* the foremost fighter of the day just as the *Mustang* was the glamour pursuit of World War II. The *Sabre* is being radically refined in the D and E models although, except for a new radar nose, the design is outwardly the same. One addition is an afterburner for added power and speed. The *F-86D* is an all-weather interceptor, carrying 24 Mighty Mouse 2.75 solid-propellant rockets, besides normal armament of guns. Presumably, the rockets would be useful against bombers as well as ground targets. German use of rockets as air-to-air missiles was deadly. Power is a GE J-47 turbine developing 5,200 pounds of thrust. Holder of the world's speed record of 670.2 mph set with full complement of guns and ammunition, the basic Sabre design features 35 degrees of sweep in a very thin wing. By laminating the structural material between inner and outer tapered skins, the designers solved the thin-wing problem. The cockpit is pressurized, equipped with an ejection seat. Gross weight is 13,175 lbs. for the earlier Sabres. Service ceiling is above 40,000 ft. Span and length are 37 ft. The *F-86E* features a controllable tail.

plane on the cover

Above—This excellent flight photo reveals the new radar nose which distinguishes the D. The object jutting from the nose not identified.



Right—Under view of experimental airplane shows temporary rig for afterburner trials. Wheels tuck into fuselage due to thin-wing.

WHY models land in trees

by Prof. Emil R. C. Tate

The quantity of water dissipated by the leaves of a single tree on any warm dry day runs into barrels. This brilliant observation is the basis of the Tate Effect. . . .

Of all the problems that beset serious students of model aeronautics, whether it be high or low propeller pitch; thick or thin stabilizers; R.O.G. or hand launch; or spondules or purfelators to assist R.O.W. take-offs, none of these problems approach in magnitude and importance the most perplexing problem of all time.

Why do models invariably land in trees?

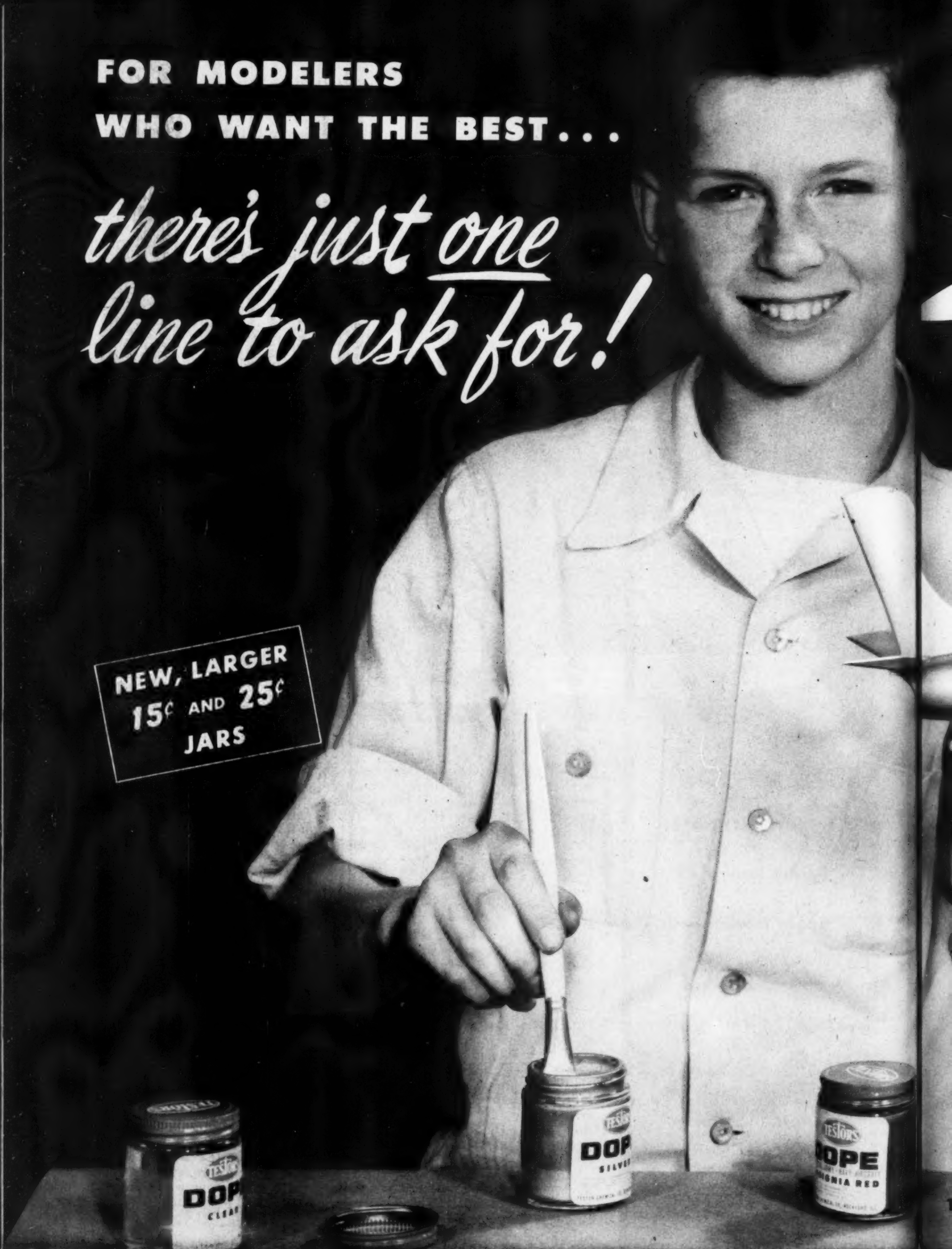
We have all, I am sure, observed many times the operation of this phenomenon. The day may be calm, or nearly so, the flying area clear, except for maybe one or two trees at the uttermost distance. The model may be launched with due and careful regard to avoid connecting with trees — but sooner or later it becomes esconced firmly and stubbornly, many feet above the ground while the builder tosses twigs, stones and epithets and finally barks his shins scrambling up the trunk to discover the model is perched in a limb too fragile to climb and too heavy to shake. Then he walks a mile for permission to cut the tree, another mile or two to borrow an axe and returns to find the model sitting calmly on the ground, deposited there by a passing breeze. It is an interesting commentary on the cussedness of things inanimate that if he leans the axe against the tree he can fly the rest of the day without the model approaching within 100 feet of it; but should he be foolish enough to return the axe immediately, the model will fetch up in its leafy resting place on the next heave.

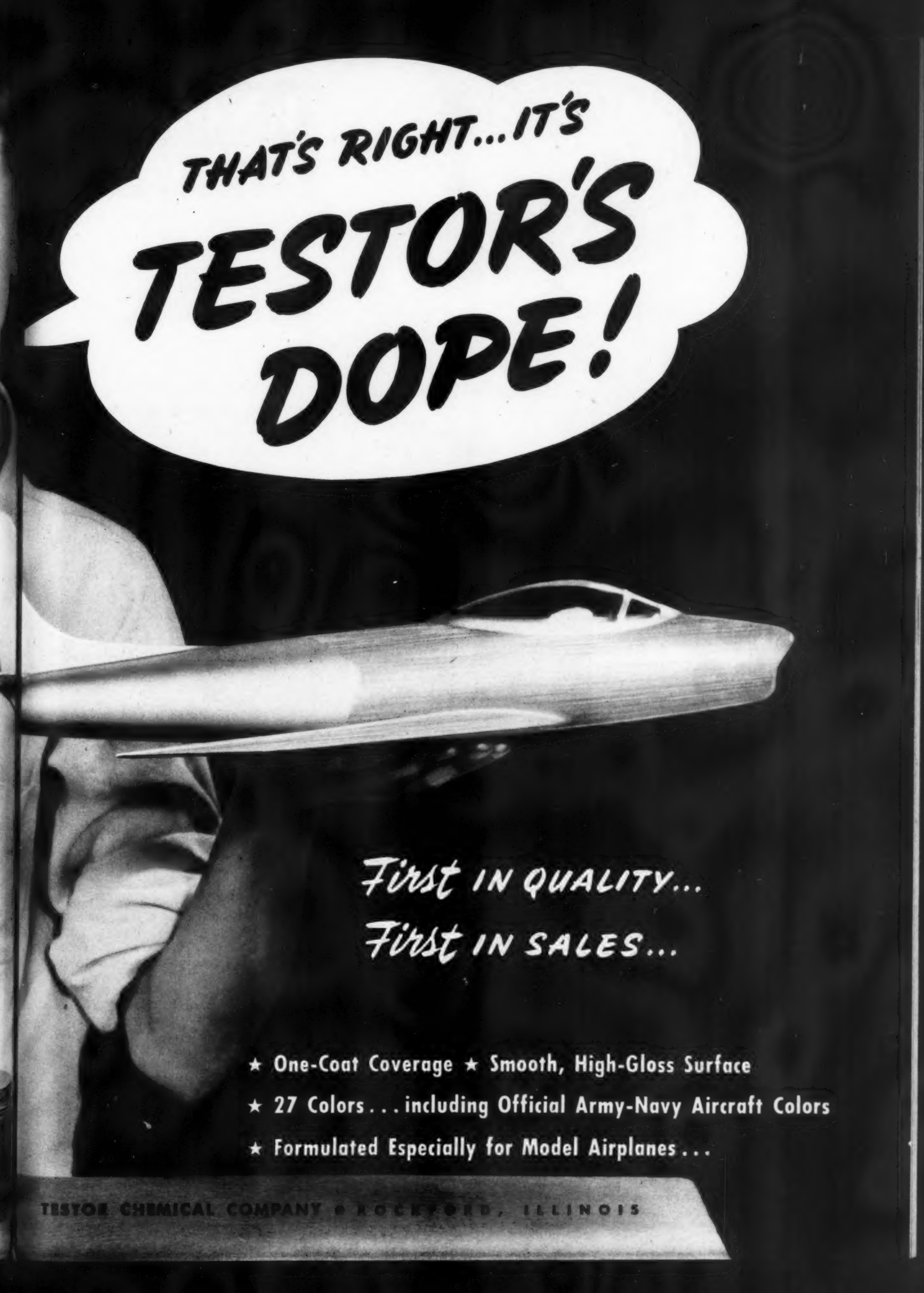
Now then, is this ridiculously petulant behavior of tree-seeking models merely coincidental; does it belong to the happenstance phylum, or is there some scientific explanation for it?

Careful observation and analysis of all factors has led me to the conclusion that it is no accident when a model lands in a tree. It is merely a physical demonstration of a little known set-up of natural forces. This, I feel entitled to term "Tate's Effect" and modestly urge the acceptance of this term among model builders.

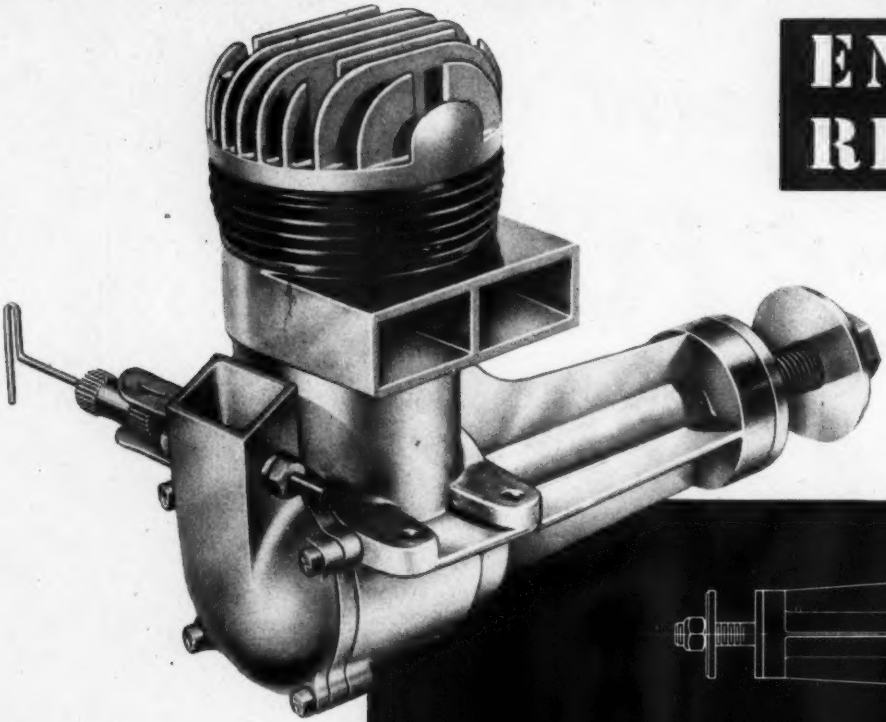
In order to explain this effect it will be helpful to visualize an ideal example of Tate's Effect in operation. Here is the example:

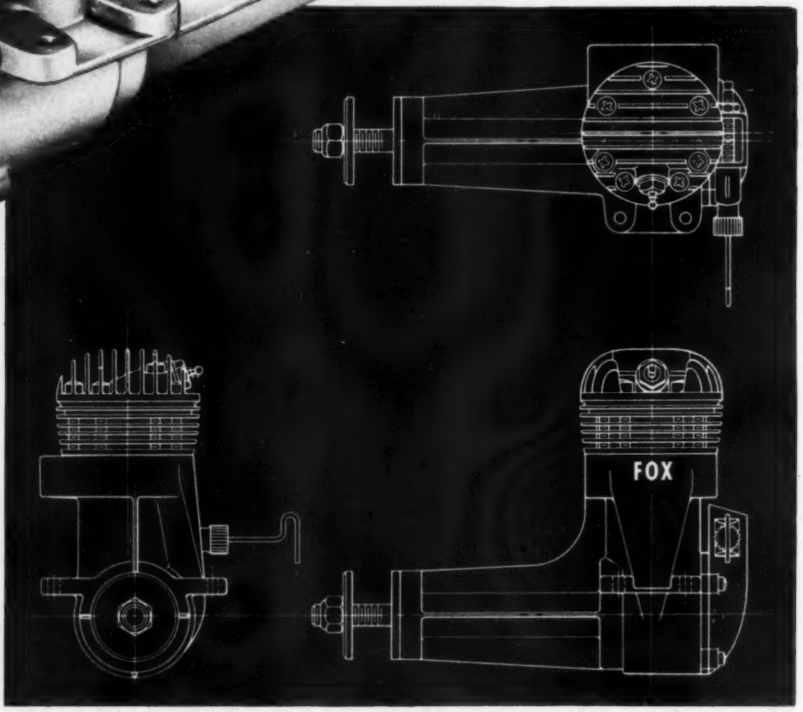
It is an average warm day with just the faintest perceptible breeze stirring. A model air- (*Continued on page 50*)


FOR MODELERS
WHO WANT THE BEST...
there's just one line to ask for!
NEW, LARGER 15¢ AND 25¢ JARS
TESTOR'S
DOPE


THAT'S RIGHT... IT'S
TESTOR'S
DOPE!
First IN QUALITY...
First IN SALES...
★ One-Coat Coverage ★ Smooth, High-Gloss Surface
★ 27 Colors... including Official Army-Navy Aircraft Colors
★ Formulated Especially for Model Airplanes...
TESTOR CHEMICAL COMPANY • ROCKFORD, ILLINOIS

ENGINE REVIEW





FOX 59

Completely new the 59 has many unusual features to tickle the fancy of big engine lovers. Designed for steady running.

▶ Although the 1951 model Fox 59 bears considerable similarity to the old Fox 59, it is actually a completely new design. No internal parts are interchangeable with the old model.

General specifications are: Bore, .920; Stroke, .906; HP, 1.00 plus; Weight, 9-3/4 ounces; Type, two cycle rotary disc, main ball bearing, lapped piston, glow.

The piston and cylinder are both completely machined from mehanite and are lapped to a perfect fit. The manufacturer uses the lapped mehanite piston because it is felt to give consistantly higher power, and longer life than the previous ring design. Also, mehanite does not lose its strength at high operating temperatures as the previous aluminum one did, and is not subject to burning out.

Considerable work has been done to develop the piston-cylinder combination so that it is not subject to freezing often experienced in large lapped-piston motors. The piston is extremely light, resulting in unusually smooth operation.

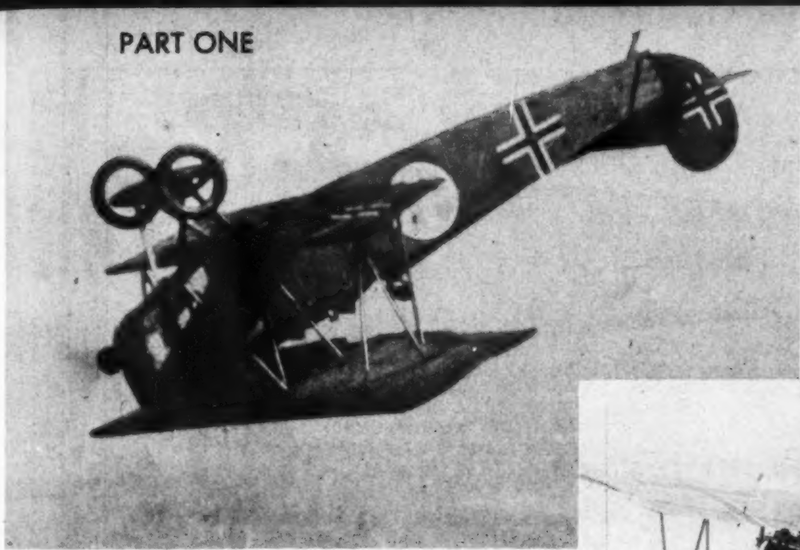
The wrist pin is conventional full floating, fitted with anti-friction pads. The connecting rod is fully machined from 24st bar. It is not fitted with bushings as the manufacturer found 24st to be unexcelled as a bearing material under conditions of good lubrication as in a con rod.

The crankshaft is a three-piece design furnace brand, hardened and ground. It is accurately balanced for smooth operation. It is splined to a no-slip thrust washer. The prop shaft is 1/4" in diameter to take the majority of suitable props without reaming out.

The general internal layout follows rather closely the design of the 35, except for a new and novel carburetion system. This consists of a conventional rotor disc valve opening from a rather large plenum chamber. The entrance to the chamber is through a conventional down-draft spraybar carburator. The function of the chamber is to smooth out the intake impulses, and to act as a reservoir supplying the engine during temporary interruptions in the fuel supply. The needle valve is located in the correct position for on-the-mount tank installations. A unique characteristic is the long crankshaft; another, unusually light weight.

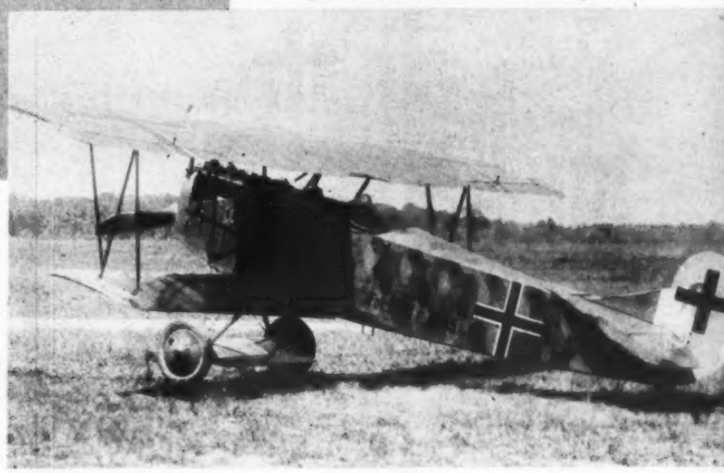
The advantages of the long shaft for cowled installations are obvious, and its light weight makes it entirely practical to install the 59 in airplanes designed for 19's and 29's.

PART ONE



WORLD WAR I

Left — Plane most respected by Allies was Fokker *D-VII*, here shown at the top of a loop. Below — Cantilever wings, steel-tube fuselage among features destined to become important.



Fokker D-VII

by ROBERT C. HARE

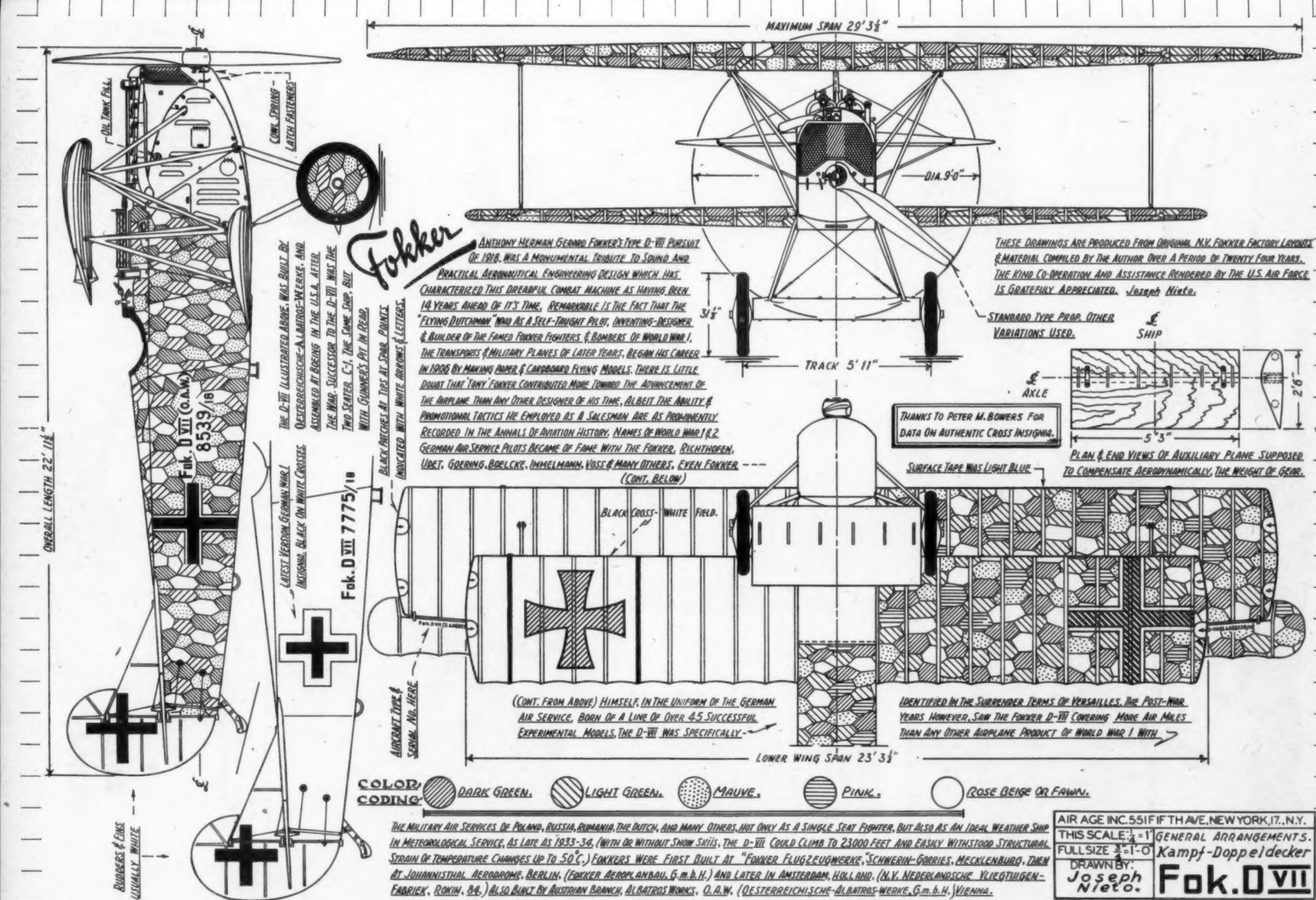
▸ Early in May, 1918, pilots assigned to the French Sector began to meet increasing numbers of a strange new German pursuit. They observed it flying with squadrons of Albatros and Pfalz single seaters, perhaps two or three to a flight. The new ships stayed pretty well back, very seldom engaged in a dogfight, but impressed Allied pilots by their ability to bound around in the air like a rubber ball.

The new ship was gradually introduced in greater numbers and took a greater part in action. This lasted a couple of weeks. Now ordinarily a squadron would be given a familiarization flying and maintenance course on a new aircraft. In this case however, the Germans were putting the ships in front line squadrons directly from the factory to save time. The pilots were taking it easy to save the new ships—they took turns flying them on patrols.

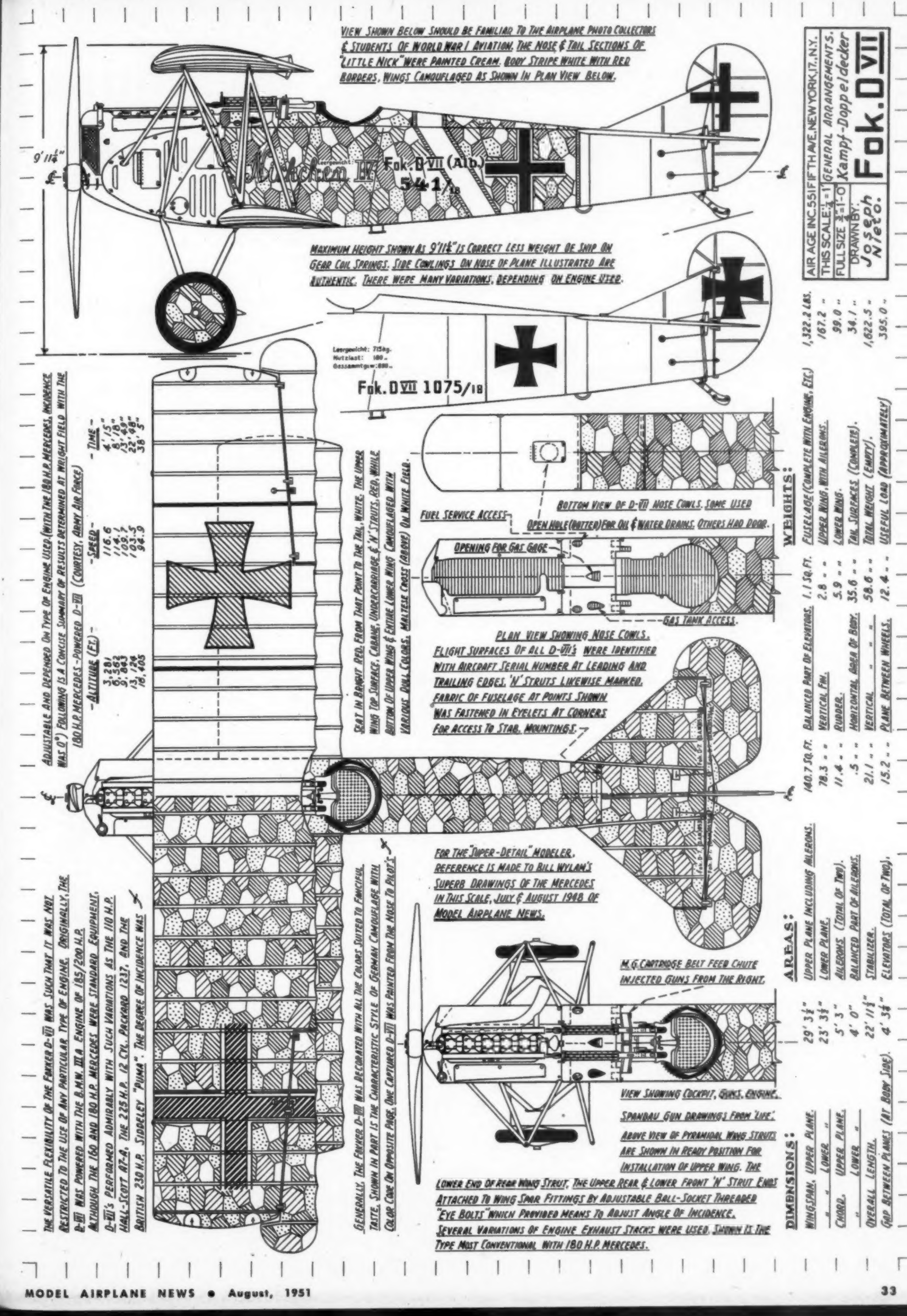
There was a reason for all this haste. At that time the German Imperial Air Service was at a pretty low ebb. Baron von Richthofen had been killed the month before; and American squadrons, which were just beginning to get into action had given the Allied air services a shot in the arm. This new plane, then, was the shot in the arm the Germans needed. It was the Fokker *D.VII*.

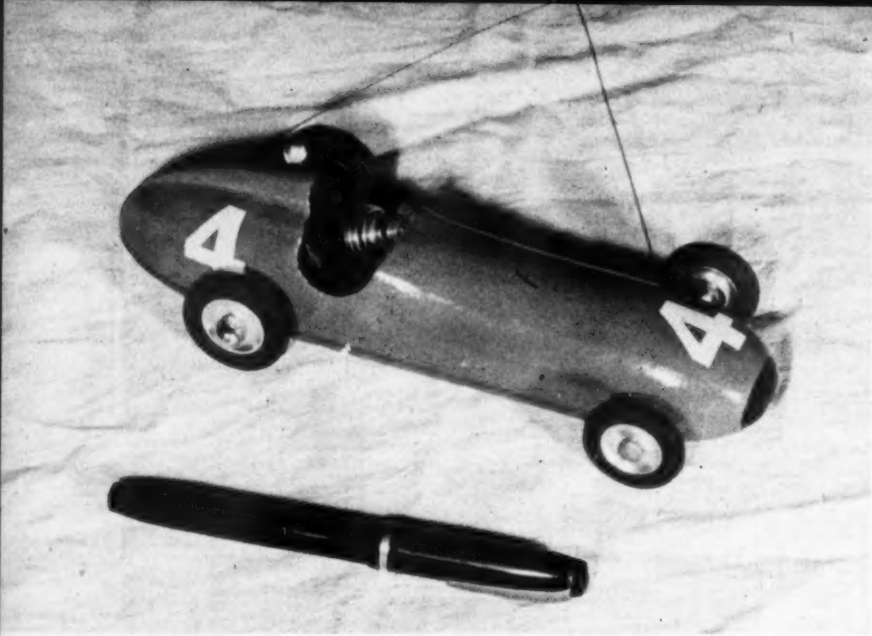
Among modelers and World War I aviation enthusiasts the question always arises as to which was the best plane of that period. The Fokker *D.VII* certainly will have its supporters in any such discussion. It is the intention of the author to be as objective as possible in this series, however, and reporting the best (*Continued on page 46*)

For many years after the war, the *D-VII* saw service all over the world and some were used by our own Air Force. At the Armistice 1,700 were in service.



OVERALL LENGTH 22' 11½"
OIL TANK FILL.
COWL SPRING-LATCH FASTENERS
RUDDERS & FINS USUALLY WHITE
Fok. D VII (O.A.W.) 8539/18
Fok. D VII 7775/18
LATEST VERSION GERMAN WAR I INSIGNIA. BLACK ON WHITE CROSSES.
THE D-VII ILLUSTRATED ABOVE, WAS BUILT BY OESTERREICHISCHE-ALBATROS-WERKE, AND ASSEMBLED AT BOEING IN THE U.S.A. AFTER THE WAR. SUCCESSOR TO THE D-VII WAS THE TWO SEATER C-1, THE SAME SHIP, BUT WITH GUNNER'S PIT IN REAR.
BLACK PATCHES AT TIPS AT SPAR POINTS INDICATED WITH WHITE ARROWS & LETTERS.
AIRCRAFT TYPE & SERIAL NO. HERE
Fokker
ANTHONY HERMAN GERARD FOKKER'S TYPE D-VII PURSUIT OF 1918, WAS A MONUMENTAL TRIBUTE TO SOUND AND PRACTICAL AERONAUTICAL ENGINEERING DESIGN WHICH HAS CHARACTERIZED THIS DREADFUL COMBAT MACHINE AS HAVING BEEN 14 YEARS AHEAD OF IT'S TIME. REMARKABLE IS THE FACT THAT THE "FLYING DUTCHMAN" WAS AS A SELF-TAUGHT PILOT, INVENTING-DESIGNER & BUILDER OF THE FAMED FOKKER FIGHTERS & BOMBERS OF WORLD WAR I, THE TRANSPORTS & MILITARY PLANES OF LATER YEARS, BEGAN HIS CAREER IN 1906 BY MAKING PAPER & CARDBOARD FLYING MODELS. THERE IS LITTLE DOUBT THAT "TONY" FOKKER CONTRIBUTED MORE TOWARD THE ADVANCEMENT OF THE AIRPLANE THAN ANY OTHER DESIGNER OF HIS TIME, ALBEIT THE ABILITY & PROMOTIONAL TACTICS HE EMPLOYED AS A SALESMAN ARE AS PROMINENTLY RECORDED IN THE ANNALS OF AVIATION HISTORY. NAMES OF WORLD WAR I & 2 GERMAN AIR SERVICE PILOTS BECAME OF FAME WITH THE FOKKER. RICHTHOFEN, UDET, GOERING, BOELCKE, IMMELMANN, VOSS & MANY OTHERS, EVEN FOKKER
(CONT. BELOW)
(CONT. FROM ABOVE) HIMSELF, IN THE UNIFORM OF THE GERMAN AIR SERVICE. BORN OF A LINE OF OVER 45 SUCCESSFUL EXPERIMENTAL MODELS, THE D-VII WAS SPECIFICALLY
IDENTIFIED IN THE SURRENDER TERMS OF VERSAILLES. THE POST-WAR YEARS HOWEVER, SAW THE FOKKER D-VII COVERING MORE AIR MILES THAN ANY OTHER AIRPLANE PRODUCT OF WORLD WAR I WITH
MAXIMUM SPAN 29' 3½"
DIA. 9'0"
3½"
TRACK 5' 11"
THESE DRAWINGS ARE PRODUCED FROM ORIGINAL N.V. FOKKER FACTORY LAYOUTS & MATERIAL COMPILED BY THE AUTHOR OVER A PERIOD OF TWENTY FOUR YEARS. THE KIND CO-OPERATION AND ASSISTANCE RENDERED BY THE U.S. AIR FORCE IS GRATEFULLY APPRECIATED. Joseph Nieto.
STANDARD TYPE PROP. OTHER VARIATIONS USED.
℄ SHIP
℄ AXLE
2'6"
5'3"
THANKS TO PETER M. BOWERS FOR DATA ON AUTHENTIC CROSS INSIGNIA.
PLAN & END VIEWS OF AUXILIARY PLANE SUPPOSED TO COMPENSATE AERODYNAMICALLY, THE WEIGHT OF GEAR.
SURFACE TAPE WAS LIGHT BLUE
BLACK CROSS-WHITE FIELD.
LOWER WING SPAN 23' 3½"
COLOR CODING
DARK GREEN.
LIGHT GREEN.
MAUVE.
PINK.
ROSE BEIGE OR FAWN.
THE MILITARY AIR SERVICES OF POLAND, RUSSIA, RUMANIA, THE DUTCH, AND MANY OTHERS, NOT ONLY AS A SINGLE SEAT FIGHTER, BUT ALSO AS AN IDEAL WEATHER SHIP IN METEOROLOGICAL SERVICE, AS LATE AS 1933-34. (WITH OR WITHOUT SNOW SKIIS, THE D-VII COULD CLIMB TO 23000 FEET AND EASILY WITHSTOOD STRUCTURAL STRAIN OF TEMPERATURE CHANGES UP TO 50°C.) FOKKERS WERE FIRST BUILT AT "FOKKER FLUGZEUGWERKE", SCHWERIN-GORRIES, MECKLENBURG, THEN AT JOHANNISTHAL AERODROME, BERLIN. (FOKKER AEROPLANBAU, G.m.b.H.) AND LATER IN AMSTERDAM, HOLLAND. (N.V. NEDERLANDSCHE VLIEGTUIGEN-FABRIEK, ROKIN, 84.) ALSO BUILT BY AUSTRIAN BRANCH, ALBATROS WORKS, O.A.W. (OESTERREICHISCHE-ALBATROS-WERKE, G.m.b.H.) VIENNA.
AIR AGE INC. 551 FIFTH AVE, NEW YORK, 17., N.Y.
THIS SCALE: ¼" = 1'
FULL SIZE ¾" = 1'-0"
DRAWN BY: Joseph Nieto.
GENERAL ARRANGEMENTS.
Kampf-Doppeldecker
Fok. D VII


VIEW SHOWN BELOW SHOULD BE FAMILIAR TO THE AIRPLANE PHOTO COLLECTORS & STUDENTS OF WORLD WAR I AVIATION. THE NOSE & TAIL SECTIONS OF "LITTLE NICK" WERE PAINTED CREAM. BODY STRIPE WHITE WITH RED BORDERS, WINGS CAMOUFLAGED AS SHOWN IN PLAN VIEW BELOW.
9' 11¼"
Fok. D VII (Alb.)
541/18
MAXIMUM HEIGHT SHOWN AS 9'11¼" IS CORRECT LESS WEIGHT OF SHIP ON GEAR COIL SPRINGS. SIDE COWLINGS ON NOSE OF PLANE ILLUSTRATED ARE AUTHENTIC. THERE WERE MANY VARIATIONS, DEPENDING ON ENGINE USED.
Leergewicht: 715kg.
Nutzlast: 180 "
Gessammtgew: 880 "
Fok. D VII 1075/18
ADJUSTABLE AND DEPENDED ON TYPE OF ENGINE USED (WITH THE 180 H.P. MERCEDES, INCIDENCE WAS 0°) FOLLOWING IS A CONCISE SUMMARY OF RESULTS DETERMINED AT WRIGHT FIELD WITH THE 180 H.P. MERCEDES-POWERED D-VII (COURTESY, ARMY AIR FORCE)
- ALTITUDE (FT.) - | - SPEED - | - TIME -
3,281 | 116.6 | 4' 15"
6,562 | 114.1 | 8' 18"
9,843 | 109.7 | 13' 49"
13,124 | 103.5 | 22' 48"
16,405 | 94.9 | 38' 5"
SEAT IN BRIGHT RED. FROM THAT POINT TO THE TAIL, WHITE. THE UPPER WING TOP SURFACE, CABANE, UNDERCARRIAGE & 'N' STRUTS, RED, WHILE BOTTOM OF UPPER WING & ENTIRE LOWER WING CAMOUFLAGED WITH VARIOUS DULL COLORS. MALTESE CROSS (ABOVE) ON WHITE FIELD.
BOTTOM VIEW OF D-VII NOSE COWLS. SOME USED OPEN HOLE (BOTTOM) FOR OIL & WATER DRAINS. OTHERS HAD DOOR.
FUEL SERVICE ACCESS
OPENING FOR GAS GAGE
GAS TANK ACCESS.
PLAN VIEW SHOWING NOSE COWLS.
FLIGHT SURFACES OF ALL D-VII'S WERE IDENTIFIED WITH AIRCRAFT SERIAL NUMBER AT LEADING AND TRAILING EDGES. 'N' STRUTS LIKEWISE MARKED. FABRIC OF FUSELAGE AT POINTS SHOWN WAS FASTENED IN EYELETS AT CORNERS FOR ACCESS TO STAB. MOUNTINGS.
FOR THE "SUPER-DETAIL" MODELER, REFERENCE IS MADE TO BILL WYLAM'S SUPERB DRAWINGS OF THE MERCEDES IN THIS SCALE, JULY & AUGUST 1948 OF MODEL AIRPLANE NEWS.
THE VERSATILE FLEXIBILITY OF THE FOKKER D-VII WAS SUCH THAT IT WAS NOT RESTRICTED TO THE USE OF ANY PARTICULAR TYPE OF ENGINE. ORIGINALLY, THE D-VII WAS POWERED WITH THE B.M.W. III A ENGINE OF 185/200 H.P. ALTHOUGH THE 160 AND 180 H.P. MERCEDES WERE STANDARD EQUIPMENT. D-VII'S PERFORMED ADMIRABLY WITH SUCH VARIATIONS AS THE 110 H.P. HALL-SCOTT A7-A, THE 225 H.P. 12 CYL. PACKARD 1237, AND THE BRITISH 230 H.P. SIDDELEY "PUMA". THE DEGREE OF INCIDENCE WAS
GENERALLY, THE FOKKER D-VII WAS DECORATED WITH ALL THE COLORS SUITED TO FANCIFUL TASTE. SHOWN IN PART IS THE CHARACTERISTIC STYLE OF GERMAN CAMOUFLAGE WITH COLOR CODE ON OPPOSITE PAGE. ONE CAPTURED D-VII WAS PAINTED FROM THE NOSE TO PILOT'S
M.G. CARTRIDGE BELT FEED CHUTE INJECTED GUNS FROM THE RIGHT.
VIEW SHOWING COCKPIT, GUNS, ENGINE.
SPANDAU GUN DRAWINGS FROM 'LIFE'.
ABOVE VIEW OF PYRAMIDAL WING STRUTS ARE SHOWN IN READY POSITION FOR INSTALLATION OF UPPER WING. THE LOWER END OF REAR WING STRUT, THE UPPER REAR & LOWER FRONT 'N' STRUT ENDS ATTACHED TO WING SPAR FITTINGS BY ADJUSTABLE BALL-SOCKET THREADED "EYE BOLTS" WHICH PROVIDED MEANS TO ADJUST ANGLE OF INCIDENCE. SEVERAL VARIATIONS OF ENGINE EXHAUST STACKS WERE USED. SHOWN IS THE TYPE MOST CONVENTIONAL WITH 180 H.P. MERCEDES.
DIMENSIONS:
WINGSPAN, UPPER PLANE. 29' 3½"
" " LOWER " 23' 3½"
CHORD. UPPER PLANE. 5' 3"
" LOWER " 4' 0"
OVERALL LENGTH. 22' 11¾"
GAP BETWEEN PLANES (AT BODY SIDE). 4' 3½"
AREAS:
UPPER PLANE INCLUDING AILERONS. 140.7 SQ.FT.
LOWER PLANE. 78.3 " "
AILERONS (TOTAL OF TWO). 11.4 " "
BALANCED PART OF AILERONS. .5 " "
STABILIZER. 21.1 " "
ELEVATORS (TOTAL OF TWO). 15.2 " "
BALANCED PART OF ELEVATORS. 1.1 SQ.FT.
VERTICAL FIN. 2.8 " "
RUDDER. 5.9 " "
HORIZONTAL AREA OF BODY. 35.6 " "
VERTICAL " " " 58.6 " "
PLANE BETWEEN WHEELS. 12.4 " "
WEIGHTS:
FUSELAGE (COMPLETE WITH ENGINE, ETC.) 1,322.2 LBS.
UPPER WING, WITH AILERONS. 167.2 "
LOWER WING. 99.0 "
TAIL SURFACES (COMPLETE). 34.1 "
TOTAL WEIGHT (EMPTY). 1,622.5 "
USEFUL LOAD (APPROXIMATELY) 395.0 "
AIR AGE INC. 551 FIFTH AVE. NEW YORK, 17, N.Y.
THIS SCALE ¼"=1'
FULL SIZE ½"=1'-0"
GENERAL ARRANGEMENTS.
Kampf-Doppeldecker
DRAWN BY:
Joseph Nieto.
Fok. D VII

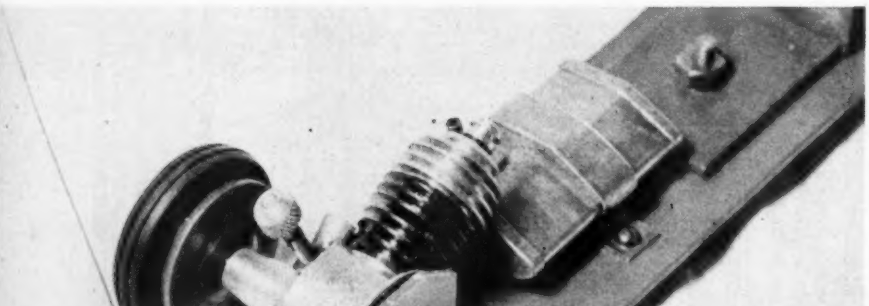


Bright red color scheme with white decals dress up the pee-wee thunderbolt. Note K & B engine installation. Other engines mount vertically, require a 1/2" higher body to clear the top of this cylinder.

mercedes racer

by DICK EALY

For something practical to do with those AA gas engines when you are not flying model airplanes, try this simple, cheap model of the great 248 mph Mercedes Benz racing car. Hardly bigger than a fountain pen, this tiny Mercedes has done 50 mph! It has direct drive, with wheel on shaft, eliminating gears and complications.



Aluminum motor mount also holds right rear axle, 6-32 machine screw bolted to mount with stop nut. Left wheel mounts on engine shaft. Started by bringing drive wheel in contact with spinning bike tire.

The long, underslung Mercedes-*Benz M-163* German racer of pre-war days was chosen as the design which most nearly met our requirements for installing an AA engine. This was the fastest racer of its time and had a V-12 short-stroke supercharged engine of 485 hp at 8,000 rpm. An offset drive shaft allowed the driver's seat to be dropped within five inches of ground. It had a five speed gearbox and made 248 mph on the straightaway.

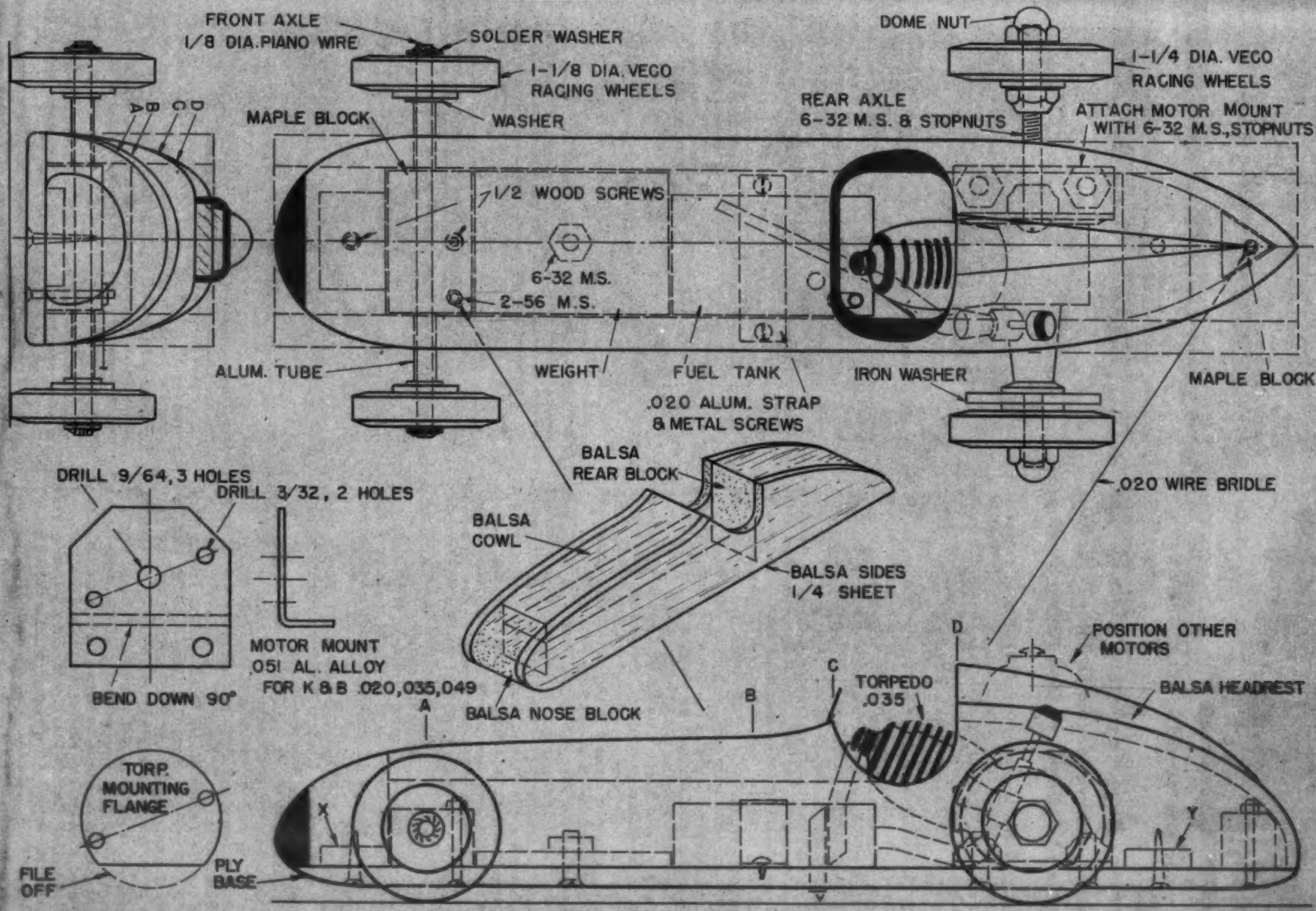
Construction is simple as all parts are attached to a plywood base. The balsa body is easily removed for accessibility. Any K & B engine .020, .035, or .049 may be installed as shown. Use of any other engines will require a vertical mounting of the motor. In this case it would look nicer if engine were enclosed by raising top profile lines 1/2 inch.

Races are run on nine-foot lines. Indianapolis type of races with pit stops can be run, counting elapsed time for winner. Starting is easy as drive wheel is pressed against fast turning bicycle tire. Speeds of 50 mph have been obtained.

Make the base from plywood. It is 5/32" or 3/16" thick by 1-5/8" wide by 7-3/4" long. Cut the front and back ends to outline in top view. Use 1-0 sandpaper to form radius on bottom edges. Set the base aside and make balsa body next. Make 1/4" thick sides from medium balsa by using profile outline in side view. Cut the nose block and rear block from medium balsa and cement between sides. Make top cowl block and cement in place. Tack cement body to base. Cut balsa away at both ends to base outline. Carve body to contours shown in front view. Add headrest. Sand body smooth with 2-0 paper and then 400 wet-or-dry. Remove body by slitting tacked glue spots with razor blade.

Make maple block for mounting front axle. Drill 1/8" hole through as shown and insert axle made from 1/8" diameter piano wire. Should be tight fit. Cement block to base. Drill 5/64" hole up through bottom and use a 1/2" long wood screw to cinch maple block to base. Attach weight made from 3/32" sheet iron or lead to base with 6-32 machine screw. Froom 1-1/2" long wedge-tank is secured to base with .020 allum. alloy sheet strap and metal screws. Overflow tube extends just through base. Drill 3/32" hole in proper place for this tube on the base.

Make motor mount out of .051 aluminum alloy either 17 S. T. or 24 S. T. Holes are shown for all K & B engines which may be tilted in a forward position. (*Continued on page* 45)


FRONT AXLE
1/8 DIA. PIANO WIRE
SOLDER WASHER
1-1/8 DIA. VECO
RACING WHEELS
WASHER
MAPLE BLOCK
A
B
C
D
1/2 WOOD SCREWS
6-32 M.S.
2-56 M.S.
ALUM. TUBE
WEIGHT
FUEL TANK
.020 ALUM. STRAP
& METAL SCREWS
DOME NUT
1-1/4 DIA. VECO
RACING WHEELS
REAR AXLE
6-32 M.S. & STOPNUTS
ATTACH MOTOR MOUNT
WITH 6-32 M.S., STOPNUTS
IRON WASHER
MAPLE BLOCK
BALSA
REAR BLOCK
BALSA
COWL
BALSA SIDES
1/4 SHEET
BALSA NOSE BLOCK
.020 WIRE BRIDLE
DRILL 9/64, 3 HOLES
DRILL 3/32, 2 HOLES
BEND DOWN 90°
MOTOR MOUNT
.051 AL. ALLOY
FOR K & B .020, .035, .049
POSITION OTHER
MOTORS
TORPEDO
.035
BALSA HEADREST
X
Y
TORP.
MOUNTING
FLANGE
FILE
OFF
PLY
BASE

AMA official news

AMA Stunt Pattern Begins Here

by RUSS NICHOLS and CARL WHEELEY

Air Force's World-Wide Meet • National Records Pending • Service and Supply Section expanded • Contest Calendar • Stunt Pattern drawings

"17 Air Force Commands to Send 170 Airmen to World-Wide Model Plane Meet, July 16-21," reads the headline of the May 9, 1951 Sheppard AFB, Tex., *Sheppard Senator.* A large number of events are planned for the modeling airmen and range from Control Line Speed, Stunt, Team Racing, Flying Scale, Beauty, Free Flight Gas, PAA Load, PAA Clipper Cargo, Outdoor Rubber, to Towline Glider. Many of these are broken down into separate classes meaning that all tolled, there will be over 20 events.

Before any of the regular Air Force, Air Force Reserve, AFUS, and Air National Guard personnel on active duty may participate in the Air Force World-Wide Model Airplane Championships, they must have competed and won in two elimination contests—one at Air Force Base level and one at Air Force Command level. Each AFB has been authorized to hold an elimination and all except those on Command level have been held by this time. Eliminations on the Command level must be held by July 8th.

Lucky will be the twenty top men at the Sheppard AFB Championships. They will be assigned to represent the Air Force at the Dallas AMA Nationals.

The Air Force World-Wide Model Airplane Championship is, according to officials, "specifically designed to further the development of model airplane building and to encourage participation in the recreational model airplane phase of the AF Hobby Shop Program."

John W. (alias "Red") Hillegas, District III AMA Vice President, has been preparing his suggestions for standard contest proceedures for use at the Nationals and other large contests. His work is hailed by everyone as being a big step in making the Nationals more consistent.

We at AMA have seen a copy of "Red's" proposed system which seems to be an improved version for use of the timing cards made famous at the Olathe Nationals. Let's hope that "Red" will be on hand at Dallas to give a first-hand account of how the system works.

National Records Pending. Outdoor Hand-Launched Glider, Class A Senior—10:05.7. Flights made by Robert Isaacson, Gardena, Calif., on April 7 using a model designed by Pete Demos.

Unlimited Rubber Model, Senior—9:46.1. Flights made by Robert Issacson, Gardena, Calif., on April 7 using a model designed by Bob Bienenstein.

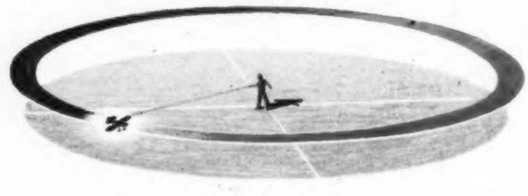
Unlimited Rubber Model, Open—18:00.0. Flights made by Manuel D. Andrade, Oakland, Calif., on April 22 using an original design. Model was of the Wakefield type and featured a geared motor in a fuselage of 40" over-all length and a 20" prop.

Wakefield Rubber Model, Open—18:00.0. Flights made by Joe Bilgri, San Jose, Calif., on April 22 using an original design. Model had a single wheel take-off gear, 198 sq. in. wing with eliptical tips, 78-3/4 sq. in. elevator, a prop 20" in diameter, and an over-all fuselage length of 38-1/4". Wing was mounted on a low platform and a plastic bubble was used to bring the fuselage up to the required cross-section. Model's weight was 8-1/4 oz.

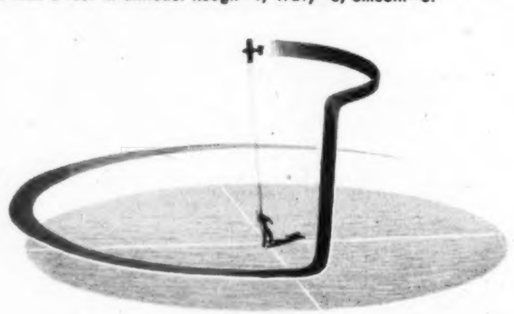
Gas Models, Control Line Speed, Class C Open—129.44 mph. Flight made by the team of William Pascal Massey and Carl C. Hall, Pampa, Tex., on April 15. Model was powered by a McCoy 49 with a *(Continued on page 53)*

1. STARTING. Take off within one minute from starting time. (The time allowed to obtain 5 points for getting the plane airborne within 1 minute starts when the contestant or mechanic begins cranking the engine. The contestant has a total of 3 minutes to get the plane into the air from the time the handle is placed in the center of the flight circle. Failure to become airborne within the 3 minute limit will constitute an attempt.) Points—5.

2. TAKE-OFF. (Sloppy take-off is judged when the airplane is out of control or wobbles and bounces into the air. Rough take-off is judged in cases where the airplane is instantly airborne and climbs too steeply with not too much control or where plane leaves the ground, then touches wheels again with a bounce. Smooth take-off is judged when the take-off is under full control, smooth and stable at all times, with the climb at a gradual angle representing the climb of a real airplane. Take-off gear must be permanently affixed to the model. Model must R.O.G.) Sloppy—1, Rough—3, Smooth—5.

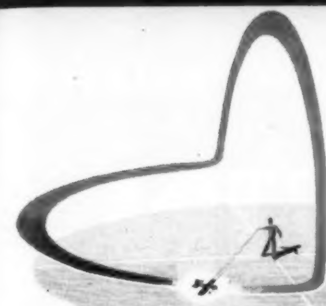


3. LEVEL FLIGHT. 2 laps at 6-ft. altitude. (Altitude used must be between 6 and 10 feet and a constant altitude should be maintained. Rough—very unstable and varies over 4 feet in altitude. Wavy—when plane is not too stable and varies over 2 feet in altitude. Smooth—very stable and varies less than 2 feet in altitude. Rough—1, Wavy—3, Smooth—5.



4. CLIMB. At least 15 feet measured vertically with a precise change of direction into and out of maneuver. (Climb—model climbs at an angle no less than 60 degrees for at least 15 feet or mushes badly going into or out of maneuver. Steep climb—plane climbs at a 90 degree angle for at least 15 feet, but mushes or wobbles slightly going into or out of maneuver. Vertical climb—plane climbs at a 90 degree angle for 15 feet with no mush or wobble going into or out of maneuver. Past vertical—see steep climb. All climbs will begin at the normal level flight altitude and level off from climb on the same side of flight circle that the climb was started from. Crossing over the top of the circle will lose all climb points.) Climb—3, Steep Climb—7, Vertical Climb—10.

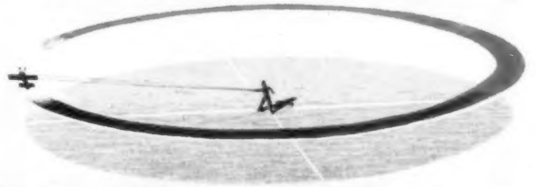
5. DIVE. At least 15 feet measured vertically with a precise change of direction into and out of maneuver. (Dive—plane dives at an angle no less than 60 degrees for at least 15 feet or mushes badly going into or out of maneuver. Steep dive—plane dives at a 90 degree angle for at least 15 feet, but mushes or wobbles slightly going into or out of maneuver. Vertical dive—plane dives at a 90 degree angle for 15 feet with no mush or wobble going into or out of maneuver. Past vertical—see steep dive. Dive must start and end on the same side of the flight circle. Crossing over the top of the circle and entering dive will lose all dive points.) Dive—3, Steep Dive—7, Vertical Dive—10.



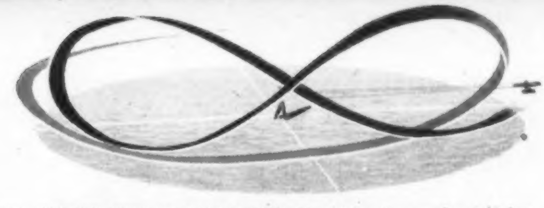
6. WING-OVER. Vertical climb and dive with model passing directly over flyer's head, cutting the ground circle in half. (Poor—a 60 degree climb and dive or the model mushes and wobbles badly on entry or pull out. Fair—a 90 degree climb and dive, but mushes slightly on entry or pull out. Excellent—a 90 degree climb and dive with sharp entry and pull out without mushing. Start and finish at approximately 6 ft. altitude.) Poor—5, Fair—10, Excellent—15.

7. CONSECUTIVE INSIDE LOOPS. Entire series should be done within 1/4 lap with control lines at an angle of 60 degrees or less to the ground at all times during maneuver. (Loops should be judged for roundness and smoothness. If they are not round or if ship wobbles or mushes, they are not executed smoothly. Also, they should all be done at the same spot without the plane moving forward or backward from the position of the first loop. All loops should be the same size as the first one for maximum points.) 1 loop—10, 2nd to 5th incl.—5 each. 2 points shall be deducted for each loop not smoothly executed.

8. CONSECUTIVE OUTSIDE LOOPS. Entire series should be done within 1/4 lap with control lines at an angle of 60 degrees or less to the ground at all times during maneuver. Loops may be entered from inverted or normal flight, so long as complete loops are made. (Outside loops should be judged the same as inside loops. Special attention should be given the first outside loop in watching its altitude. All loops should be the same size as the first one for maximum points.) 1st loop—10, 2nd to 5th incl.—5 each. Three points shall be deducted for each loop not smoothly executed.



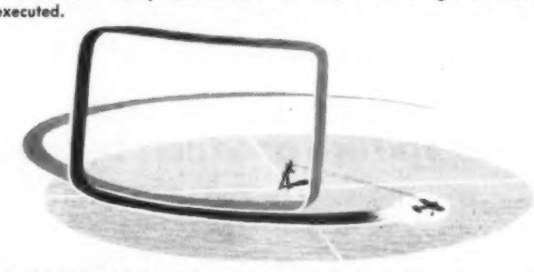
9. INVERTED FLIGHT. Must start and end with model in normal upright position. Flight direction must be opposite to that of take-off. Model should be flown at a 6-foot altitude. (Immediately upon becoming inverted, the model should attain a 6 ft. altitude and the judging of the laps should begin. Inverted flight laps should be judged the same as for level flight for the first two laps. After 2 complete laps are flown at approximately 6 ft. altitude, recovery should be made. A smooth recovery below 45 degrees altitude without mush or wobble would rate 10 points. Below 45 degrees, but with a mush or wobble rates 7 points. Above 45 degrees or with a bad mush or wobble rates 3 points.) 1st lap: rough—3; wavy—7; smooth—10. 2nd lap: rough—3; wavy—7; smooth—10. Recovery: rough—3; wavy—7; smooth—10. (Maximum points possible—30.)



10. HORIZONTAL FIGURE EIGHT. Should be done within 1/2 lap, with control lines at an angle of 60 degrees or less to the ground at all times during maneuver. (Both ends of the horizontal eights should be round circles of the same size. At the point of intersection, model should be in a vertical position. Any figure eight that has mushing, wobbling, unequal sized ends or plane not in vertical position at intersection will be given minimum points.) 1st eight—20, 2nd and 3rd—10 each. Five points shall be deducted for each eight not smoothly executed.

11. VERTICAL FIGURE EIGHT. Control lines should not exceed an angle of more than 90 degrees to the ground. Vertical eights are judged the same as horizontal eights with the exception that the model should be in a horizontal position at point of intersection. (Vertical eights may be started at bottom or center and may have the inside loop part on either the top or bottom. Either part may be done first.) 1st eight—20, 2nd and 3rd—10 each. Five points shall be deducted for each eight not smoothly executed.

12. OVERHEAD FIGURE EIGHT. Center of figure to be directly over flier's head. Control lines should not be at less than a 30 degree angle to the ground at any time during maneuver. (Overhead eights are judged the same as the other eights with the exception that the model should always point in the same direction at the top of each circle. Special attention should be given to the 30 degree minimum angle.) 1st eight—20; 2nd and 3rd—10 each. Five points shall be deducted for each eight not smoothly executed.



13. SQUARE LOOP. Horizontal flight portion of maneuver should consume at least 1/4 lap. Corners should have a radius of approximately 5 feet. Angle of control lines to ground should not exceed 60 degrees at any time during maneuver. (Square loop definition is self-explanatory. However, the maneuver must be started from right-side-up horizontal flight and the first corner will be a climb. Watch for 60 degree maximum altitude.) 1st corner—5; 2nd—5; 3rd—10; 4th—20. Corners with greater than the approximate 5 foot radius specified—0.

14. LANDING. (Will be considered a nose-over, if model goes up on nose, even though it may not flip over on its back. Should tail drop back to ground, landing is a nose-over. Rought landing model bounces more than one time, drags wing tip, or ground loops. Bounce landing—fairly smooth, but bounces once without leaving the ground more than few inches. Smooth landing—no bounce or roughness, rolls to smooth stop.) Nose-over—1; Rough—5; Bounce—10; Smooth—15; Belly landing (gear retracted)—0.

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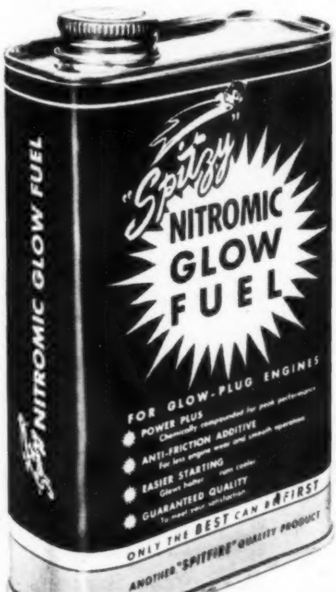

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Planes in the News

(*Continued from page* 13)

sional data include: Wingspan, 110', length, 77' 1", height, 32' 8".

The Royal Air Force has just announced the placing of a production contract for its first sweptwing fighter, a Vickers-Supermarine type, presumed to be very similar to the Vickers-Supermarine Type *535*.

This silver beauty was first publicly demonstrated at the 1950 Society of British Aircraft Constructors display at Farnborough, England. And after pilot Mike Lithgow completed his first runs, the assembled crowd knew it had just seen a world-beater. In some high-speed passes down the field, Lithgow reached speeds of about 660 mph. This was at a time when the plane had been flying hardly more than one week, which is a tribute to the pilot's confidence in his plane.

The Type *535* is the third stage of development which began with the *Attacker*, a straight-winged jet fighter now in production for the Royal Navy. The *Attacker* was modified by sweeping the wings and tail to delay compressibility effects. After about two years of flying experience with the *510*, Supermarine introduced the new Type *535*, very similar in line to the *510*, but with extended nose and increased wing area. This model has been referred to as a fighter version of the *510*, and most likely will be the production version with few changes.

The *535* has a greater degree of sweep than its contemporary, Hawker's *P.1081*. Its fuselage has been increased in size to accommodate an afterburner fitted to the Rolls-Royce *Nene*. However, Vickers has said that the plane can also take a Rolls-Royce *Avon*, and this could be the production engine.

Novel landing gear is one feature of the *535*. As demonstrated by Lithgow, it mounted main wheels, nose wheel and dual tail wheels. Lithgow made his landings in the tail-down three-point position and only allowed the plane to pitch forward onto the nosewheel after rolling some distance down the runway.

Four 20 mm. cannon are installed in the wings; internal fuel capacity is 400 gal. A 250-gal. drop tank can be slung under the belly to increase the range. Wingspan is 31' 8-1/2"; length, 42' 11"; height, 12' 6". Gross wing area is 295 sq. ft. We've shown the craft with basic RAF roundels and markings.

A brief announcement that Boeing's *B-47B Stratojet* had been refuelled in flight underscores the nearness of global effectiveness of Strategic Air Command. The *B-47*, SAC's near-sonic A-bomb carrier, has normal range of somewhere around 3000 mi.; this is long-range for a jet plane, but not long-range from SAC's viewpoint. So the in-flight refuelling makes the *B-47* a true long-range job. Apparently the only hooker in the scheme is that the operation of fueling is almost entirely dependent on weather conditions—the tanker and tankee must be able to see each other. Anticipated troubles of slowing the *B-47* down to lumbering *KC-97A* tanker speeds failed to appear. Boeing's boom system is, of course, used for the in-flight gassing.

The *B-47* production program is undergoing a buildup comparable only to the World War II *B-29* deal, according to one observer. Brig. Gen. O. F. Carlson gets the title—and the job that goes with it—of Special Assistant to the USAF. Chief of Staff in charge of the *B-47* program and the *B-52* program. And with Boeing grinding them out at Wichita, Lockheed at Marietta, Georgia, and Douglas doing the same at the Tulsa, Oklahoma plant, there should be swift creation of a big force of all-weather, flight-refuelled, near-sonic jet A-bomb carriers.

And more from Boeing, now entering the tag end of *B-50* production. Generally when a fighter or bomber reverts to a trainer, the end is in sight, and the recent announcement of the Boeing *TB-50D* navigator-bombardier trainer is no exception to that generality. In this plane, the Air Force gets a flying classroom capable of training two each of student navigators and radar operators. Each team also has an instructor in addition to the regular crew complement.

Elimination of the rear bomb bay in favor of electronic gear, and remodelling of the central fire control station in the rear pressurized compartment accommodates the radar boys. Forward crew quarters provide for student navigators and instructor. A graduating trainee is expected to have become proficient in three jobs: navigator, bombardier and radar operator. And what happens to him then? He goes to a *B-47* group as a crewman.

British have released some pre-flight data and performance figures on the new Type *173* twin-rotor, 10-14 passenger helicopter. Now being completed at the Filton works of the Bristol Aeroplane Co., Ltd., the craft is due to fly this summer.

The *173* draws heavily on Bristol's experience with their Type *171* single-rotor copter. In fact, the rotor hub and blades of the *171* are transferred intact to the *173*. Two Alvis Leonides LE.25 H.M.V. radial engines, rated at 550 hp each, power the *173*. In the event of a single engine failure, the copter can continue flying on the other.

General configuration is reminiscent of the Piasecki layouts. Normal gross weight is 10,600 lb., but the craft can hover at a figure as high as 13,500 lb. Cruising speed in lean mixture is around 105 mph; top speed, 142. Overall length with rotors folded is 78' 2", width, 17'; height, 15'. Diameter of rotors is 48' 6.7".

British European Airways has announced that they expect to be operating the Bristol *173* between Birmingham and London by 1953. And this development, plus BEA's intent to operate, is all part of a carefully planned 10-year program laid down recently (although begun in 1948) by the British. Plan covers complete helicopter service scheme for Great Britain.

High-Thrust Engines. The race for the 10,000-lb. thrust jet engine continues as strongly as ever, and a new entrant is in the contest. The Westinghouse *J-40-WE-6* was recently announced by that company, accompanied by the now-standard claim that the engine delivers more thrust than any

other jet engine known to be in production in the world today. (Allison, General Electric, Pratt & Whitney and Wright Aero representatives please line up again at the right—you've all had one turn!) About the only apparent difference between the general appearance of the *J-40* and other axial-flow turbojets is in the inlet ducting. The *J-40* has a split intake; twin elliptical inlets have the gearbox between them, and something that looks like fuel pumps and fuel regulators placed below. Combustion section looks like the standard Westinghouse annular burner. A variable tailpipe nozzle appears to be fitted. We haven't shown any picture of the engine for two reasons: First, all jet engines look alike from the outside; second, the released photo has been tortured beyond recognition by an airbrush artist, and doesn't show much anyway. The word is that the *J-40* is to go into the Douglas *F4D* and *A3D* as well as McDonnell's *F3H* fighter.

The *Olympus*, huge jet engine originally developed by The Bristol Aeroplane Co., Ltd., England, is reportedly on the test stands at the Wright Aeronautical Corp.'s Wood-Ridge, N. J. factory. Rumored designation of the engine is *J-67;* rumored trust, around 10,000 lb. static at sea level. There is one possible different feature about the *Olympus* worth noting—it is reported to have two multi-stage compressors operating on the same shaft. (Previous engines have only one multi-stage compressor.)

New Records. A new world speed record for propeller-driven planes—469 mph—was set April 9 by Jacqueline Cochran, flying a modified North American *F-51 Mustang.* Miss Cochran hit that speed over a 16-mi. straight-a-way. National Aeronautic Assn. has recognized the new mark.

At New York, little more than one month later, Max Conrad set his Piper *Pacer* down on the runway at LaGuardia field after a trans-continental flight in a little over 23 hr. Same pilot and plane flew the Atlantic to Rome last year. Conrad's trans-U.S. trek is some kind of a record for light craft.

And in France, Mme. Jacqueline Auriol beat Jackie Cochran's world speed record for women when she flew a French-built De Havilland *Vampire* at an official average of 509.2 mph. over a 100-kilometer (62.1 mi.) course. Mme. Auriol is the daughter-in-law of the French president. (Incidentally, there may be a hidden reason behind this record flight and Mme Auriol's statement to the press that she was happy to have beaten the world record in a plane built by French engineers. It seems that a semi-official report on the current status of French aviation said flatly that the performance of the French-built *Vampire* is unsatisfactory under conditions of military load. Mme. Auriol's flight may be an attempt to soft-pedal some of this adverse criticism.)

And finally, a Piper *Super Cub* with Ana Louise Branger up set a new international altitude record of 26,820 ft.

Bits and Pieces. Next craft to roar off Grumman's runway at Bethpage, Long Island, will be their *XF9F-6*, new sweptwing variant of the famous *F9F Panther*. Engine is *P & W J-48*, rated at somewhere around 6250 lb. sea level static thrust. Plane is intended for low supersonic speeds and is considered to be an interim type until Grumman's *F10F-1* is ready . . . *XA78S* is a recent addition to the ranks of high-strength aluminum alloys. It shows about a 10 per cent improvement over *75S* in tensile strength, but has about the same elongation and fatigue properties . . . National Air Races are to be held at Detroit's Wayne County Municipal Airport on August 18 and 19. Six jet races are scheduled, the Continental 190-cu.in. engine race is back in, and the military will participate. Want any more? . . . New *Canberra* type is the *P.R.3.* Initials stand for photo-reconnaisance, its chief duty. It doesn't look much different from a regular *Canberra;* cameras are installed and the bombardier's panel is missing from the clear nose . . . McDonnell's *F3H* is about to go on flightest status. It's sweptwing, with a 7000-lb. thrust Westinghouse *J-40* turbojet . . . About mid-November, according to recent estimates, the sweptwing North American *F2J* will be ready for first flight . . . Italy, staging a fairly vigorous renaissance in aircraft design, has another new military aircraft—the Macchi *M.B.324*, a sweptwing jet fighter with a design speed of 600 mph . . . There's a terrific shortage of engineers in the aircraft industry, a shortage that is going to get worse in a couple of years. If you're teetering on the fence, trying to decide whether or not engineering is for you, consider yourself pushed. You couldn't make a better choice.

Pen-Pals

Ron Wilson, 29 Bell Lane, Bury, Lancs., England would like a female correspondent . . . T. Umegaki, 47 Fukuokacho, Takamatu, Kagawa, Japan wishes to write to an American modeler who likes rubber, gas and free flight . . . W. LuFbunnow, Jr., 2308 N. Kitley Ave., Indianapolis, Ind., would like a pen friend interested in pre-World War I aircraft.

EXCHANGE MOTORS: Lars Howing, Rortaggarvagen 34, Bromma, Sweden is anxious to obtain an AA *Wasp*, *Royal Spitfire* or .074 *Cub* for drawings, model magazine, etc. . . . Ray Roeber, 2236 N. Tyler, El Monte, Calif., would like to exchange his O.K. *Cub* .074 for a *Baby Mac*, *Spitfire* or an *Infant Torpedo.* He would be interested in exchanging his Atwood *Wasp*, too . . . A. Greenwood, 49 Madeira Ave., Worthing, Sussex, England wishes to exchange any English kit, accessory, etc. for a Jim Walker pressure tank and fuel regulator.

SPECIAL REQUESTS: R. D. Gamblin, 28 Marquess Road, Islington, London, N. I., England wishes to exchange a quantity of 1/16" X 1/30" and 3/32" X 1/30" for 1/4" X 1/24" Dunlop or Pirelli rubber strip . . . Ralph Jacobson, 1216 Catalpa Drive, Dayton 7, Ohio has various back issues of magazines and plans on model aircraft that he wishes to dispose of.

NOTICE

In the July issue it was stated that Story's *Quest* replaces his *Key* racer. This does not apply to the *Key* kit by Berkeley Model Supplies who will continue to manufacture the *Key* and *Keydet* as well as the *Quest*.

over the counter

A monthly review of hobby developments, new items

by THE TRADE OBSERVER

That interest in radio control is snowballing is evident from the fact that two American firms now are importing British-made equipment. One of these American Telasco, Ltd. (55 West 42 St., New York 18, N. Y.), handles the ECC *Tele-Commander* line of receivers and transmitters as reported in an earlier issue. Now, Polk's Model Craft Hobbies, Inc., (314 Fifth Ave., New York 1, N. Y.) have made available the E. D. (Electronic Developments) MK.111, consisting of transmitter, receiver, and escapement, at $39.95. The E. D. set has several unusual features, the most obvious one a receiver that is entirely enclosed and protected by a crashproof tubular case, at a weight of 1-3/4 ounces. The transmitter case is purposely made large enough to provide space for tools and equipment. An eight-foot sectional antenna attaches to the side of the case. The escapement features a current saving device. This operates in such manner that, when the escapement magnet is energized, only enough current is drawn after that to hold the escapement in the pulled-in position. The escapement is of sturdy construction, weighing 3/4 ounces.

Enterprise Model Aircraft & Supply Co. Inc., (5107 Ave. D., Brooklyn, N. Y.), first made famous by its series of scale models brought out in control line form, then more recently by the 50c *Niftie* fliers and carved solid-model warplanes, has now gone into still another field with the announcement of a $1.00 towliner kit called the *Towline Terror*. Featuring finished parts that fit together into ready-cut notches, there are no spars, tips, or leading and trailing edges, in the usual sense of the word. The novice can assemble this kit within two hours, according to the manufacturer. Designed by Jerry Brofman, an earlier version held a duration record of 53 minutes. Kit includes colored *Skysail* covering material, visual instruction plans.

Lovers of the precise and authentic detail in marine items will be wowed by Marine Model Co., Inc.'s (Halesite, N. Y.) 40 mm. *Twin Bofors* anti-aircraft gun, a world renowned Swedish made gun that made its reputation during World War II. Particularly noted for the two-banks-of-four guns installation by the British, Marine's Bofors consists of metal castings and an octagonal wood mounting base. Height is 1-3/4", length 3-1/4". Scale is 1/4". Details follow United States Navy standards. Weighs 3/4 pound, retails at $2.95 as a kit or $5.00 as finished model.

Both modelers and dealers will be interested in Monogram's (225 N. Racine Ave., Chicago, Ill.) display for hobby shops, because of the illustrated array of 12 *Speedee-Bilts*. The *Speedee-Bilts*, all prefabricated kits of well-known aircraft, are distinguished by their use of plastic detailed parts, such as pilots, cowls, float tips, cowls, and bombs.

Boat and car builders with flywheel problems for *Cub* .039's, .049's, and .074's, will find useful the new *Cub* flywheel made by Herkimer Tool & Model Works, Inc. (Herkimer, N. Y.). This flywheel has been recommended by Berkeley Models for their Chris Craft *Riviera* kit and by Sterling for their Richardson and Higgins kits. Featuring an integral spin starting groove, the *Cub* flywheel is plated against corrosion. It weighs 1-1/2 ounces, has a diameter and width of 1-3/32" C 5/8". This flywheel can be used on any race car or motor boat employing a *Cub* motor.

Smaller in size and lighter in weight, the new Pylon Brand clips announced by Sullivan Products (214 W. Dauphin St., Philadelphia, Pa.) are stronger, nevertheless, than previous connectors. One of the outstanding features of the new clips is their simplicity of operation. Squeeze them and they open; release them and they close with firm self-locking grip, which assures a safe positive connection. Pylon Brand clips come in hinged plastic boxes, and are available at two for 15¢ or 75¢ the dozen.

Gaunt Industries (827 Irving Park Rd., Chicago, Ill.), makers of the *Hypo Oiler*, a tiny hypodermic gimmick for getting oil into hard-to-reach places, now has a fine greaser in fountain pen size, known as *Hypo-Lub*. You press the plunger to obtain the desired amount of grease, or squeeze the transparent plastic barrel for minute amounts. Price is $1.00 at hobby, sporting goods, or hardware stores or from the manufacturer.

Ohlsson & Rice (Emery at Grande Vista, Los Angeles 23, Calif.) has an intriguing leaflet catalog devoted completely to the firm's now extensive line of marine supplies. O & R's latest marine propellers and struts are cast from high tensile bronze. They also have seven two-blade props, two three-bladers, as well as ball thrust bearings, propeller shafts, universal couplings, flywheels, etc. One gimmick in particular, a 49¢ junction terminal kit, is highly desirable for starting boat engines, or cowled airplane engines where access to the plug has been a problem. This kit involves a kind of double-ended glow plug without the normal filament coil. A slide-on fastener attaches to the outer end and a permanent lead runs from the inner end, inside the boat or plane, to the glow plug proper.

With R.O.W. flying booming, Jasco's (Junior Aeronautical Supply Co., 203 E. 15th St., New York 3, N. Y.) new *Phoenix Skipper* model kit is well timed. Another pylon, it features a very clever arrangement for detachable floats and interchangeable land gear, using grommets. The plans are loaded with the usual perspective sketches. Rather low pylon and a tall slim vertical tail add eye appeal to the familiar pylon outline. Has pop-up tail, fuse dethermalizer, eye dropper tank, three-floater arrangement. Retails $2.25.

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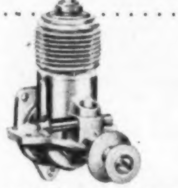

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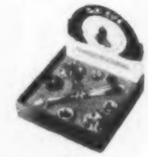

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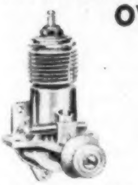
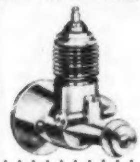


.049 CUB

Outstanding Half-A for free flight and indoor flying $5.25



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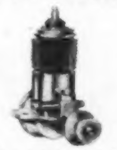
This is the Real Engine for your first power model . . . easy to install . . . a snap to start $4.95



.099 CUB

Outstanding for its rugged powerful Class "A" performance $6.95

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Flywheel for .039, .049, and .074 Cubs 60c
Propeller Spinner . . . fits all Cubs 15c
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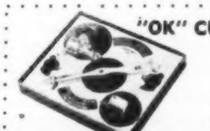

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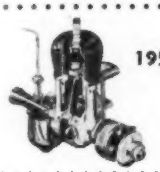
Contains your displacement choice "OK" Cub engine, plus propeller, wedge type fuel tank and neoprene tubing.



1950 Class "A" Leader "OK" BANTAM

A better than ever edition of the famed record breaker. Weight 3¼ oz. with range of 2,500 to 11,500 rpm. With glow plug, less tank $9.95

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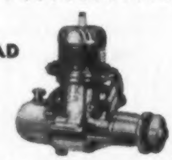
New features include ebonized cylinder, gold anodized high compression cylinder head. Complete with glow plug and tank. $10.95



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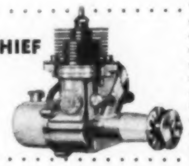

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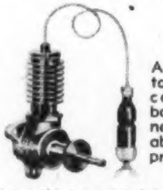
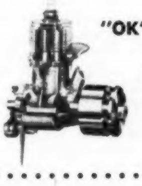
With new ebonized cylinder, gold anodized cylinder head, aluminum crankcase, large ball bearing. Complete with glow plug and tank $11.95



IGNITIONLESS "OK" CO_2

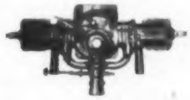
A cinch to mount, ready to run without plug, coil, condenser, battery, booster, wiring, timer or needle valve to worry about. Runs on compressed gas $5.95



"OK" SUPER 60 MARINE

Basically the same as the Super 60 . . . with flywheel for use in racing boats and cars. Complete with glow plug and tank. $14.95

MIGHTY "OK" TWIN



For large models and radio controlled ships. Weighs 23 oz. with tank. Up to 6,000 rpm complete with spark plugs and tank $55.00

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"OK" GLOW FUEL

Methanol base, heavily fortified with nitrates. Ideal for break-in . . . operates over a wide range of climatic conditions .... 85c pint

"OK" COILS

Fast spark, low battery drain — for "A" to "D" Class. Complete with lead. $1.50

TWIN COILS

For all makes of two cylinder engines—with leads and matched condenser. $4.00

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Proved to be the best all 'round plug — makes engine start fast—accelerate easily —operate over wide range of speeds. Short or long 59c

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Baby Barnstormer

(*Continued from page 15*)

not meant as a criticism of this kit.

Following are a few general comments on construction. If you wrap a small strip of tin completely around the top of the elevator horn, glue it on; then drill the pushrod hole through both tin and plywood as it will cut down any possible wear. Here again is a useful application to all plywood horns.

As far as the aluminum for the landing gear fairings, try a hardware store for an aluminum steampipe covering strap. It is very light weight and works beautifully. Couldn't find any AA wheel collars so made little spring wheel retainers by taking about six wraps of 1/64" piano wire around a nail slightly smaller than the landing gear. Leave a loop sticking up and put them on with a twisting motion.

If you want to try different gas tanks, make the top fuselage block removable by cutting a slot in #1 bulkhead. Glue a strip of 1/16" balsa to the bottom of the block extending over the back about 1/16" to fit into the slot. A clip is bent of 1/64" piano wire and fastened to the fire wall which holds the front of the block down.

I painted the *Baby* with fuel-proof dope yellow with blue trim and natural wing panels. The same number of coats was used as described in the text and only 1/4 oz.-8 grains was added to the weight.

In flying, we tried different engines of .049 displacement. We tried the tank shown in the plans, some commercial tanks, a couple of different fuels, props and various length lines. All the engines we tried flew it nicely. Pictures show the K & B .049.

We had about a 15 mph wind with spanking gusts upward so we were flying on 20-foot lines. When the first loop was tried, the *Baby* looked like a scared rabbit, so we immediately went to 35-foot lines and it held out like a veteran. Let me say here that one of the answers to stunting an AA ship is the .008 flexible lines. Ours were made by Sullivan Products.

Both the stunt tank given in the plans and the new *Skwedge* small plastic tank by Sullivan Products worked perfectly.

With both *Powermist* and K & B's *Supersonic 100*, we obtained good results with a Top Flite 6-3, cut down to 5-1/2-3 and K'Sun's 5-1/2-3 plastic wide blade. Choice of fuel is up to the individual.

If you are a novice at stunting or would like to attempt a few maneuvers for the first time, study the flying instructions by Lou Andrews included in the kit. They are well written and the pictures are explanatory. Hang on to 'em, they're just as good for your larger models.

Incidentally, the pictures of the *Baby* at the field were taken after about 20 flights with innumerable dumpings and cartwheels in the grass; after having been thoroughly wrung out by Jim Fluharty, one of our hot stunt pilots, it performed all the maneuvers in the AMA stunt pattern and did the inverted ones as well as the uprights. It held nicely in overhead 8's too, which as you probably know is more up to the ship than the flier.

In closing, let me mention a few brief helps in flying the AA's. If you're flying on grass, which saves on crack-ups and repairs, try laying down on a take-off strip of building paper, canvas or the like. Make the wheel axles long with removable wheel retainers and try about a 2" free-flight air wheel for easier take offs and landings.

Put clips on the handle end of the flying lines. Buy or make a handle that is completely enclosed, differing from the conventional U shaped handle in that it is made with a bar about 3/8" wide extending on around between the two legs of the U. Drill holes in this bar and by shifting the clips, in these holes, you can vary the width of the lines at the handle and thus cut down the movement of the control in the plane, with the same movement of your hand. If you're not sure, put the lines fairly close together for your first flight of the *Baby*. It has a lot of snap.

Finally, before you fly any control model, check the offset of the rudder and engine, the c.g. (balance fore and aft), weight on the outboard wing (you can always take some off but sometimes you don't have a second chance to add it on), easy working controls. Make sure the lines aren't kinked or twisted and you have up on the control handle.

The European Angle

(*Continued from page 25*)

so successful that it was only natural that the same, or similar, layout be retained. The design change is perhaps best summarized diagramatically—Fig. 5. Here we have introduced the gas model for the first time. Prior to about 1948 the successful contest gas model was either an American kit design or a British design based on current American practice at that time (making sure that it complied both with the S.M.A.E. fuselage formula and the one-third area limit for the stabilizer). As a result of this, in fact, the British contest power models followed very closely American power and wing loading specifications, although we have had no rules of this type ourselves. We will discuss the subject of gas model designs more fully later on. Suffice it to say here that by 1948 the *Bunshee* was the outstanding model in British gas contests and the British-designed *Slicker* its successor.

The F.A.I. rubber model is probably similar, in most respects, to the American stick class. A typical modern model of this type is shown in Fig. 6. This is a British design, but also pretty well representative of the average French and similar Continental designs. It features a very powerful motor and extremely rapid climb to a good height and a single- or twin-bladed folding propeller as standard. Note that while the basic layout of the ultra-light-weight model has been retained the stabilizer area has been boosted.

The other type of F.A.I. contest model is Italian in origin, featuring a very long fuselage in order to get maximum motor length. Influenced by Ellila's Wakefield success, in fact, some models of this type even use return-gears to get an equivalent motor length of some nine feet! A 5' fuselage is not

uncommon on models of this type and a typical design is sketched out in Fig. 7.

These models, so far, have not been very successful. An International F.A.I. rubber team event was inaugurated in 1950 and will become an annual affair. The Italian team flew models of this type and did badly. The Dutch team won (incidentally, flying lightened Korda Wakefields), closely followed by the British team, all flying Wakefields.

F.A.I. and Wakefield are the two most popular rubber types on the Continent. In Britain the F.A.I. rubber model is not popular. Those modelers who want to enter F.A.I. rubber events usually build a Wakefield. The keen rubber fans build an ultra-light-weight for open events and a Wakefield for the others. The F.A.I. model is an in-between class and rather neglected. In France and Italy particularly, however, the reverse is true.

Many of the leading British rubber fliers stick simply to Wakefields. A good Wakefield generally has the beating of both the F.A.I. and ultra-light-weight under almost any conditions. On an over-all basis, the Wakefield is far more consistent. The Wakefield may sink faster, but it will get up higher and is much happier in a wind.

The Wakefield as a type will be well known to American readers, so we will not discuss it at length here. Summarizing the post-war trend we can say that the shoulder-wing slabsider with rounded entry introduced by the writer has proved the most popular type up to 1950. Streamliners are definitely in the minority. The present trend is now toward the diamond-fuselage cabin layout—Fig. 8. Among the Continental countries, certain designs are typical: diamond-parasol—France and Belgium; semi-streamliners—Italy and Jugo-Slavia; deep, box fuselages with rectangular aerofoils—Norway, Sweden and Finland. Korda Wakefields are greatly favored by the Dutch and British design influence is also well apparent.

Some of the Continental countries prefer gliders to either rubber or gas—Switzerland, in particular, as an outstanding example. As a general rule, too, all Continental gliders are to F.A.I. specification with the average size considerably larger than the Nordic.

British F.A.I. glider interest is now largely centred around the Nordic specification since it is almost certain that a British team will take part in this annual international—the glider equivalent of the Wakefield.

Mercedes Midget Racer

(*Continued from page 34*)

Drill 9/64" holes in base and attach motor mount with 6-32 machine screws and stop nuts. Rear axle is a 6-32 machine screw, 1-1/2" long, and bolted to mount with a stop-nut. Place another stop-nut on axle for retaining inner side of right wheel. Place 1-1/4" diameter Veco race wheel on axle and secure with special nut as shown.

Several changes are necessary to convert the aircraft motor. Remove needle valve body by tapping lightly. Turn body around and be sure the inlet hole is at right angle to venturi. Next file flange off K & B disc mount as drawn. Attach motor with 2-5/6" machine screws. The nut holding front screw will require filing. Place 1" diameter iron washer on crankshaft and add the other wheel and nut.

A small triangular maple block is cemented and bolted to base rear end with 2-56 screw. Add the other 2-56 screw to front axle maple block and attach .020 steel wire bridle. A twisted loop is made on each end of wire. Gouge out rear block of balsa body and cut notches for axle, bridle, and needle valve in body. Plywood inserts are cemented to body at "X" and "Y". Place body on base and drill holes up through inserts at "X" and "Y". Use 1/2" wood screws to attach or remove body. Remove body for painting.

Apply two coats clear dope and sand. Use a good filler such as *Seal-Sure*, giving it three coats and not sanding between coats. Sand with 2.0 paper and 400. Paint inside of body also for protection from fuel. Use a fuel resistant finish. Paint two coats clear dope on base, omitting filler, before applying colored dope. Model painted fire engine red.

Pylon is made from broomstick about 4" high and inserted in a heavy board. Nail acts as a pivot on top of broom stick for nine foot steel wire .012 diameter.

LENS HOUNDS

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Fokker D-VII

(*Continued from page 31*)

available set of facts in the main objective.

There is no doubt that the Fokker *D.VII* was one of the best planes of the 1918 period. What made it so can be boiled down to two things: First, the Fokker *D.VII* was the German Air Service's basic fighter from May, 1918, to the Armistice. Other types of fighters were built during that period it is true, but the *D.VII* was given a build-up within the German services, as top dog, because it was a good plane and easy to build; second, its unusual design features and good performance made it the subject of many official reports which later were reproduced in the public press. So much official attention led the public to the conclusion the *D.VII* was a super ship of some sort.

A minor factor was the Armistice specification that of all German aircraft to be surrendered, all Fokker *D.VIIs* were to be turned over to the Allies first. This would lead one to believe the Allies actually feared the *D.VII*. There were enough dead *D.VII* pilots before the summer of 1918 was over to throw that idea out the window. The reason the *D.VII* was the only plane specifically mentioned in the Armistice was that the Germans had more of them in operation than any other pursuit type—about 1700—and hundreds were under construction at the time. It was just good business to get them out of the way first.

Structure of the Fokker *D.VII*, to which the Allied press paid so much attention, amounted to a prediction of things to come, all wrapped up in one airplane. Of course, the doubting Thomases were plentiful. But history has demonstrated who was right.

Fokker's use of steel tubing in the *D.VII's* fuselage, while not new, seemed to put the stamp of approval on the method. Steel tubing still is used in aircraft fuselage structures. Adaption of the small wing on the *D.VII* landing gear to service as a fuel tank and making it dropable led to the dropable fuel tank. Then the use of a cantilever wing structure featuring a relatively thick wing, while not new, certainly was put on the "acceptable" list by the *D.VII*. And because the ship was such a success, the use of all-balanced control surfaces seemed to set a pattern.

Simplicity was the keynote of the Fokker *D.VII* design. Manpower and material shortages suffered by Germany by the spring of 1918 dictated judicious use of both. Thus Fokker designed a flat-sided fuselage structure with a rectangular cross section, without fairing except along the upper deck, fore and aft of the pilot.

The four longerons were steel tubes of 3/4" diameter spliced into 25/32" diameter tube stock which constituted approximately the rear third. Uprights were approximately the same size as the longerons. Horizontal members varied slightly one way and the other. In the forward part of the fuselage the longerons were increased in size to serve as bracing for the engine bearer system and were supplemented by a superstructure of lighter steel tubes to support the cowling.

Welding was used as the joining method for all fuselage structural members. The obvious advantage over wood was the ease with which local stresses could be met by varying the size of tubing used, without special milling and splicing operations required for a comparable wood-framed fuselage. Even the majority of clips holding permanent accessories or fittings were attached by welding. This was particularly true of the method used to hold inter-bay wire bracing in place. An arc of small diameter steel tubing was welded between each angle formed by the junction of a longeron and a vertical or horizontal brace. Steel bracing wire was looped through these arcs and the ends joined by a turnbuckle to form a "pseudo-double" brace. In effect, it was not a double bracing, because the fractures of either strand of wire would have destroyed the usefulness of the brace.

Some of the secondary structural members (cowling supports, for instance) were attached by means of a split collar type fitting which, when a bolt running through a flange in the fitting was tightened, would grip the primary structural member. Split collars of this type were used to fasten the engine to the heavy tubing bearer mounts. The mounts themselves were welded to the primary struc-

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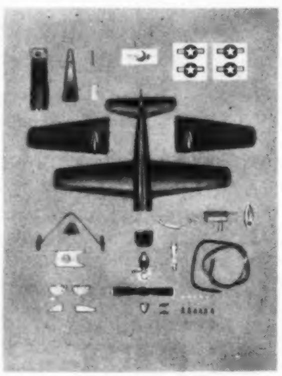

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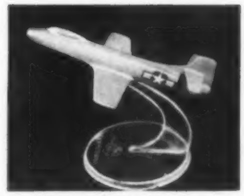

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ture. Engine bearer tubes were made of steel tubing of 1-11/32" diameter stock.

The method of constructing the Fokker *D.VII* fuselage was interesting from a production standpoint. Longerons, without any preforming, were clamped to the inside of a jig. Uprights and cross pieces then were welded into place. The acetelyne method was used. Where secondary structures were attached by welding, the work was done after the basic fuselage was removed from the jig. Such members included the pyramids of three struts on each side which supported the upper wing at the front spar. The rear spar was supported by a strut attached by means of separate fittings, welded into position. Other welds included those for fittings to attach the landing gear struts, tailplane and vertical fins.

Although the basic fuselage structure remained virtually the same throughout the various production models of the *D.VII*, engine cowlings differed. Early models were equipped with flat-sided cowls of sheet aluminum. Only access doors were provided. Later versions came out with cowls bearing vertical louvres to facilitate cooling the engine section and to relieve accumulations of engine gasses. Earliest models also were identifiable by use of an internal exhaust collector which had a "stack" of only two pipes protruding through the flat sided cowling. Later models were fitted with the familiar German bell-type collector hanging outside the cowl and fed by individual pipes from each cylinder.

Most examples of the Fokker *D.VII* were powered by the Mercedes *D.III* engine rated at 160 hp, or the high compression *D.IIIa* rated at 160 hp but which delivered 170 to 180 hp. The latter was merely a souped-up version of the former. In some instances, however, the B. M. W. *IIIa* rated at 185 hp was fitted towards the end of the war.

Although the *D.VII* cockpit was quite roomy for a pursuit plane, it was far from the most comfortable "office." The pilot sat rather high in the cockpit in a bucket seat which was adjustable vertically. Underneath him was a small plywood floorboard to which the surface controls—stick and rudder bar—were attached. The stick had the type of grip that allows the guns to be fired by pulling triggers instead of pushing firing buttons as on many W. W. I. types. On many early types fitted with the standard engine, a control was located on the left side of the stick by which the pilot could control the engine throttle without removing his left hand from the stick. This was done by means of a bowden cable from the throttle to the stick control.

Later models, particularly those with the "high altitude" Daimler and B.M.W. engines were equipped with an altitude control which enabled the engine to operate at approximately sea level pressure up to about 12,000 feet. This was a crude form of supercharger, without the complicated mechanism. The trouble was, the altitude control would jar open from vibration, and a sudden power loss would be experienced. If it were tightened to the point of not slipping, it was difficult to operate when necessary.

Another fault was the fact that the altitude control was closed when the throttle was closed because it was linked with the throttle. Thus in combat at altitude, the German pilot was in danger of a power change at a critical moment, because closing the throttle closed the altitude control, and opening the throttle again required an adjustment of the altitude control. This disadvantage was never corrected during the war, and it is very likely that a number of German pilots were killed during the few seconds their attention was away from the dogfight and on the resetting of the altitude control.

The Fokker *D.VII* had an instrument panel that was quite complete for a German plane. At the top of the panel, underneath the machine gun butts, were the altimeter at the left, the tachometer and a clock, all in a row. A second row below this contained the magneto switch at the left, the main and reserve fuel tank level indicators, and a hand grease pump for the water pump. Below these items was a row consisting of the starting magneto at the left, the fuel "off" and tank selector switch, the air pressure switch for main and auxiliary fuel tanks, and the air pressure pump switch for selecting "off", hand pump

or motor pump. Below this was a hand pump to supply air to the fuel system if the motor driven pump failed. On the floor to the pilot's right was the plane's compass. Both right- and left-hand throttles and spark controls were used from time to time.

Two Spandau machine guns were mounted directly in front of the pilot outside the upper fuselage contour. Directly below, and hidden by the instrument panels were the ammunition boxes. Immediately in front of the latter was the fuel tank, a single gas and oil tank containing main, auxiliary and oil in one unit. The affair was made of brass, and hung on the fuselage frame by bolted fittings, and without use of straps. The combination tank was riveted together and held about three gallons of oil, and 20 gallons of gasoline.

Nose of the *D.VII* was finished off in a "V" shaped honeycomb radiator, with a curved top, which on the left was connected with the system to provide for water expansion and for filling. Behind the radiator on the right side was a small door to regulate cooling over about one-third of the surface.

The landing gear was of "V" type with streamlined steel tubing struts and wire bracing in the plane of the forward legs. Lower ends of the struts on each side were welded to a sheet steel box slotted to provide for axle travel and with tubing pins around which spiral spring shock absorbers were wound. Right and left boxes were connected by a riveted aluminum box which enclosed the axle. This box served as the "main spar" for the characteristic Fokker axle wing which was made of plywood in fore and aft sections bolted together.

Tail assembly of the Fokker *D.VII* was unmistakable and a positive identifying characteristic. Steel tubing was used throughout and welding was employed exclusively. The vertical fin was a simple triangle of three pieces, the front of the bottom horizontal flattened and drilled to receive the bolt attaching it to the fuselage. There was no airfoil in the fin. The rudder comprised a main spar of steel tubing about 1-1/8" in diameter, to which was welded 9/32" tubing on each side. The rib tubings were joined at the trailing edge and welded to the 3/8" diameter steel tube outline.

Horizontal stabilizer was built around a basic triangular frame of 1-3/8" diameter steel tubing over which was welded 13/32" diameter rib tubes, thus giving a semblance of an airfoil. Ribs of the split elevator were composed of 11/32" tubing and a 3/8" diameter outline.

The vertical fin was offset to the left about 2" to counteract torque. The horizontal stabilizer was set at a slight positive incidence, which could be varied by putting washers under the forward attachment fittings. The horizontal stabilizer was braced on the underside by a streamlined steel strut on each side, and the fin was braced by a single wire on each side running to the horizontal member.

Finishing off the tail was the skid, a conventional wood member with a steel shoe and sprung internally on coiled steel springs. It was not steerable.

Next month we will present the design background of the Fokker *D.VII*, a design analysis of the wings that made this ship so famous, and provide performance figures together with a discussion of flight characteristics.

No YOU CAN'T HAVE ANY ETHER FOR YOUR DIESEL

Why Models Land In Trees

(Continued from page 27)

plane (or glider) is gliding in the vicinity of a fairly large tree. As it coasts past, several feet above and to one side, the model builder heaves a sigh of relief. A near miss. But, suddenly, inexplicably, the model dips the wing nearest the tree and circles back toward it. Perhaps, as it flits past the upper branches it barely clears them, if so, it again drops the wing near the tree and arcs back to plunk into the branches half-way up.

There we have a perfect idealized example of Tate's Effect in operation. It happens every day with minor variations in theme wherever models are flown.

Now, is there some kind of magnetic attraction between models and trees?

No. The answer is not quite as simple as that. Trees, I have found, after exhaustive tests, are generally non-magnetic.*

In order to explain this action it is necessary to make a few observations concerning the nature of trees in general.

First, what is a tree? Basically it is a large evaporating machine. The quantity of water dissipated through the leaves of a single tree during the course of a warm dry day runs into barrels. That is it doesn't exactly run into barrels, but into the air around the tree. Thus we see that air in the vicinity of trees is of a higher humidity than air some distance away. Humid air has a higher specific gravity than dry air. Keep this in mind. Humid air is heavy air. Now we will deal with hot air. Hot air, as it exists away from trees is light and dry. It is warmer than the moisture-cooled air in the vicinity of trees. This leads to a flow of air, at low velocity to be sure, but nevertheless a flow.

This is, however, not the whole answer. Tate's Effect is due not only to this flow, but also to the application of Bernoulli's theorem. Thus we see that the airflow between moving bodies is compressed, which results in a higher velocity, decreased air pressure which tends to draw the two bodies together.

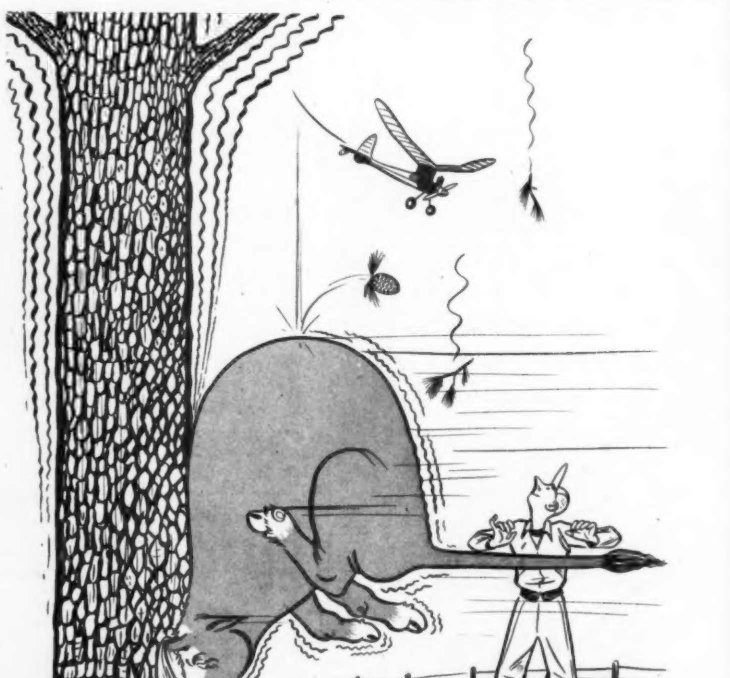
The close interrelation of these two principles form the heart and soul of Tate's Effect.

Thus we see that as a model approaches a tree, the wing nearest the tree encounters air that is heavier and thicker and is also flowing downward. Thus the wing is suddenly subjected to more resistance on the tree side. Although the downflow of air in the vicinity of the tree is seldom strong enough to upset the model, it is usually rapid enough to counteract any additional lift which the wing might obtain as a consequence of operating in thicker air. This explains why the model banks toward the tree instead of away from it. This effect probably extends for fifty feet or more around the tree on a hot summer day.

Now, the presence of humid air is enough to start the model banking in toward the tree, but may not be enough to capture it on the first pass. Here we have the operation of Burnoulli's theorem to consider. As the model wheels about the tree after grazing the high density area, it is bound to come a bit closer. Since there are gentle air currents obtained by the evaporation of water from the leaves, a more or less disturbed area of air exists. The inner wing will, of course, encounter the greatest disturbance first. This further upsets its capacity to sustain the model and it will bank even closer to the tree. At very short range the final stage of Tate's Effect sets in; the low pressure area developed between the leaves and branches and the wing tip sucks the model in and there it is, neatly hung up several feet from the ground.

And there you have it. Just what is to be done about it is beyond the scope and province of this article. But, consider the satisfaction, if you will, the next time you hang up a model, of being able to stare down the uninformed sympathizers who voice opinions of bad luck. On the contrary, you know it is not "bad luck" at all—merely a very fine example of that well-substantiated scientific phenomenon known as "Tate's Effect."

* Unfortunately, data is lacking on the tropical *Eucalyptus paniculata* (ironwood).



The Scimitar

(*Continued from page 16*)

as follows: Wing span 47"; wing area 278 sq. in.; stabilizer 48 per cent of wing area; fuselage length 25-3/4"; total weight should be between 10 and 11 ounces.

Fuselage. First, lay out your crutch of 1/8" x 3/8" hard balsa and then add 1/8" by 3/8" formers between crutch sides and also add 1/8" balsa. (Always pin construction to plans.) Be sure to taper the aft end of the crutch to fit. Add the 3/32" sheet balsa bulkheads on top of the cross braces and insert backbone which is 1/8" x 3/8". Glue framework of pylon together on plans. Finish pylon on the plans with the exception of sheeting, then slide into place as per plans and glue firmly. When inserting the pylon, be sure that the front brace is securely glued and aligned with balsa sub-firewall. Also, be sure that rear brace of pylon is glued firmly to third bulkhead aft as per plans. Add two 1/8" x 3/8" medium soft balsa from front firewall to aft side of 3/8" sheet balsa fairing base. This ties in just aft of the pylon. Insert tank in open area behind firewall if inside tank is planned. If a dethermalizer timer is to be used, it should be inserted at this point or, if preferred, a fuse-type dethermalizer can be added. Sheet the fuselage framework with 1/16" medium hard balsa, making sure that all joints are thoroughly glued at bulkhead points. Sheet bottom of fuselage, making sure that the grain runs diagonally to prevent warp or twist. Then sheet cover pylon with 1/16" medium soft sheet with grain running as per plan. This completely covers framework and fairing. Cut firewall as per plans of 1/8" plywood. (Note that plan is cut for an Arden .099 only.) Make tin plate and add the soldered nuts as per plan. Cut firewall as per plans and add plate on aft side of firewall, lining up with engine holes. Add gear, drilling holes and securely threading into place. Make sure all alignments are correct at this point. Securely glue this to front 1/8" balsa firewall. Add streamlined reinforcing blocks behind soldered nuts and fair to shape. Securely glue linen reinforcing over complete firewall, fairing and forward part of fuselage as shown. Add wedge of balsa (hard) at aft end of fuselage where stabilizer rests after adding tail platform. This allows stabilizer to rest in flat position. Add U-shaped (1/16" wire) hooks on aft end of fuselage. Drill hole through aft end of fuselage just forward of last bulkhead and insert 1/8" dowel (hard) as shown. Sand thoroughly with medium grain paper and then add one coat of sanding sealer and sand again with fine paper; then cover whole fuselage assembly with light *Silkspan.* This will add strength. At this point add wing platform and glue into place as shown, making sure that dihedral is set according to plan. Cover this with *Silkspan* and fair into place. Then add 1" diameter wheel and solder in place.

Stabilizer. Cut all parts of stabilizer and pin notched trailing edge to plans, then pin 1/8" x 1/4" balsa spar in place. Insert ribs after having notched to fit spar. Add 1/16" sheet platform at leading edge of stabilizer and glue firmly. Now add top 1/8" square balsa spar and 1/4" square balsa leading edge. Note two 1/16" balsa ribs on each side of rudder. Add 1/32" sheet balsa at leading edge of stabilizer as shown, making sure that all joints are firmly glued. Add reinforcing blocks at 1/8" x 1/4" spar center joint and at center line of trailing edge. Add reinforcing blocks to end ribs as shown per plan. Thoroughly sand complete assembly forming leading edge. Add one coat of light sealer over complete sanded assembly; then lightly sand with very fine sandpaper. Cover this with rubber model *Silkspan* or Jap tissue. Cover with six or eight coats of thin dope until paper is completely filled; then check for warps and add balsa sub-rudder at stabilizer tips as shown. Sand to smooth finish and cover with Jap tissue; dope thoroughly. Add keys and hooks as shown and cover with linen. Cut rudder from 3/32" hard balsa sheet; sand well and shape. Cover with one coat of sanding sealer and sand out lightly, then cover with Jap tissue and dope paper until filled.

Wing. Cut all parts, notch trailing edge and pin to plans. Lay out half of wing spar and add polyhedral as per plans. Note trim at poly joint on spar. Then add notched center section trailing edge. Now install ribs in center panel only; then install leading edge of 1/4" square balsa on center section. Glue all joints firmly; rock wing up onto poly tip. Add trailing edge, leading edge and ribs, making sure that poly spar extends past last rib enough to brace wing tip as shown in detail on plans. Repeat and reverse process to build other side of wing. At this point add dihedral and add 1/16" plywood beef-up strips on each side of spar at center section as shown. This is done after trimming leading, trailing edge and spar to fit perfectly at center section. Add 1/32" sheet (hard) at leading edge of wing on both di- and polyhedral sections extending this out over tips as shown per plan. Make sure all points are thoroughly glued and aligned at this point. Add sheet covering and guide keys in lower fore section of wing as shown. Also be sure plywood dihedral braces are installed on leading and trailing edge. Add braces at polyhedral joints and glue well. Then insert 1/32" sheet to top side of wing between aft end of leading edge sheet and trailing edge. Sand to fit leading and trailing edge. Thoroughly sand full assembly until all joints are smooth and rib butts are faired in. Add one light coat of sanding sealer over all assembly and sand out with very fine paper. Linen strengthener is now added to top of wing at dihedral joints, also on underside of wing. Light glue is used for this process. Cover bottom of wing with Jap tissue or rubber model *Silkspan.* (Covering the bottom first helps eliminate warps.) Covering is applied in four sections. Cover top of wing in same manner and check wing for alignment. After the wing is completely covered and doped on the edges only, spray

with a light coat of water and allow paper to tighten. Then, use thin dope on the wing until completely filled allowing to dry thoroughly.

Adjusting and Flying. Install the engine (note plans call for an Arden .099) and carefully check the plane for balance. Try to get the center of gravity where specified on the plans. Put the model together with rubber bands and ready for test gliding. To prevent any damage to the plane during test gliding, run along holding the plane high and slowly launch, making sure that you are under it at all times, so that it can be retrieved immediately in case it shows a tendency to stall or dive. If the plane shows a tendency to dive, add a sliver of wood under the leading edge of the wing until the glide levels out. To correct a stalling glide, add some wood under the leading edge of the stabilizer. Adjustments generally must be made on the rudder for a slight left-hand turn.

The next step is to start the motor and, having set the dethermalizer and fuel shutoff valve, the plane can be launched into the wind for a short test flight when the motor is running smoothly but slowly. If the plane climbs too tightly either to the left or right, change the side thrust of the motor to compensate for it. If the model climbs too steeply, add a slight bit of downthrust in the motor adjustment. If, after the plane has reached its peak of climb, the glide is straight, a floating tab made of metal or wood can be attached to either the left or right tip of the wing on the trailing edge just at the poly joint. For left turn, have the tab on the left for drag and for right turn, have the tab on the right. A slight additional weight in the form of clay attached to this floating tab will cause the plane to make a tighter turn in the glide and, vice versa, removal of weight will result in a shallower turn in the glide.

If this plane is built according to the plans and specifications shown and, when built is carefully adjusted to insure maximum performance, the builder will have a contest plane that will make the other contestants look to their laurels. Let's get going, fellows, so that next year you will have some stories to tell and some trophies to exhibit because of your *Scimitar*.

The Scorpion

(Continued from page 9)

coat liberally with cement. Now, using the templates shown on the drawings, cut (2) nose fairing halves and (2) turtleback halves from 1/16" medium hard blasa. These parts will easily fit the curvature of the formers if they are cooked for 15 minutes in boiling water and held in place on the fuselage by wrapping them with gauze bandage until dry. After drying, they will hold the correct curvature and may be readily cemented in place.

The fuselage bottom is made of 1/16" hard sheet blasa and is added last. Be sure you inset it between the sides for maximum strength. A good brisk sanding at this point will prepare your fuselage for covering with light weight *Silkspan*. This covering takes a few extra minutes, but really pays off in the additional strength gained.

The cowl can now be blanked out from the correct size sheet balsa, as shown on the drawings. Cement the cowl in its rough form to the firewall and carve, and sand to the proper size and shape. Cut out holes of the correct size for the shaft and head of your engine. The cowl, like the fuselage, will be much stronger if covered with *Silkspan*.

The final step in the fuselage construction, is the addition of the stabilizer platform and the wing and stabilizer dowels. Give the fuselage and cowl a final sanding with 8-0 sandpaper and give them (2) coats of thinned clear dope, sanding very lightly after the final coat. The final finish is accomplished with (2) coats of colored dope. The prototype sported a yellow fuselage with red trim.

A 6" commercial bubble canopy, which most hobby shops stock is used for closing the cockpit. Trim it accurately to the correct size and cement in place. This part of the job, if done neatly, greatly enhances the appearance of the model. Add the gear fairings and solder the wheels in place.

The Wing: The construction of the wing is so simple that any explanation seems rather superfluous. Briefly, this part of the structure is best built by pinning the leading edge, spar and trailing edge to the bench and inserting the ribs and false ribs in the proper places. Allow plenty of time for the wing to dry and crack the spar, leading edge and trailing edge as shown. Block up the tips and add the dihedral brace and gussets.

The center panel of the wing is covered with 1/16" sheet balsa top and bottom. The tips are carved from soft balsa scraps and cemented to the end ribs. Before covering, locate the wing on the fuselage and hold in place with pins. Now, on the underside of the center panel, build up a platform from 1/16" sheet to fair smoothly with the bottom of the fuselage.

The wing structure should be thoroughly sanded and given one coat of clear dope. Cover with colored *Silkspan* or tissue. Three coats of clear dope with the last coat plasticized will give a strong, water-resistant and tough covering.

Rudder and Stabilizer: Make the tail surfaces from very soft balsa of the correct thickness. Sand thoroughly to the sections shown on the plans and give each one coat of thinned clear dope. Sand lightly again, and cover with the same material as used on the wing. One more coat of very thin, plasticized dope may be added. Exercise a little caution at this point and do not overdope the tail group; to do so, may result in warps and a tail heavy condition. Cement the rudder to the stabilizer and check the alignment.

Adjusting and Flying: Slide the wing in position and hold in place with 1/8" wide rubber. The tail assembly is placed on the stab platform and held in place in a similar manner. Check the wing and tail group for correct alignment and warps.

The model should balance at the wing spar when supported by the fingers at the wing tips. A tail heavy condition may be corrected by adding weight to the nose and conversely, if a nose heavy condition exists. A neat method that we use, is to substitute light or heavy wheels on the gear as needed.

When your model of the *Scorpion* balances at the proper location, try one or two hand glides as a check. The model should glide in

a straight line with a slight trace of a stall.

Power flights are next. Take it easy! A little haste at this stage may result in a *Silkspan* bag of scrap balsa. For the initial flight, an engine run of four or five seconds at top rpm will be plenty. Launch the model gently into the wind, noting carefully the direction of the power turn, if any.

The original model was adjusted for power and glide turns simultaneously. We shimmed up the left side of the stab (viewed from rear) 1/32" at a time until the desired glide turn of approximately 200' diameter was attained. Three degrees engine offset to the right was added as we tightened the glide circle, until the ship was climbing in gentle left turns.

When you are satisfied with the flight characteristics of your ship, fill the tank for a 20-second engine run, and turn it loose. All those hours of work will be amply rewarded when the *Scorpion* climbs in that realistic style and finally settles down to a graceful three-pointer.

As a final thought, we would like to add that this ship seems to have many of the stability characteristics so necessary in radio control and the fuselage has ample room for all the equipment.

AMA News

(*Continued from page 36*)

9"D x 11"P Tornado prop cut to 8-1/2"D. Model weighed 22 oz., had a 15" wing span, 15-7/8" over-all fuselage length including spinner, and a spinner diameter of 1-3/4". A helmet cowl was used.

Radio Control. Walt Good, AMA Radio Control Committee Chairman, tells us many of those authorized to operate the five transmitters permitted under the Academy's experimental 27 mc license have been sending in numerous reports of test flights. We are pleased to learn that in practically all cases the reports are favorable.

Supply and Service Section. AMA has expanded this Section to include not only decals, supplies for contests, model identification stickers, etc., but also emblemized articles such as clothing, jewelry, stop watches, and novelties. No model building equipment is included in the expansion.

Also available are redesigned lapel buttons in gold for leader members and silver for license holders. In addition, there will be emblemized T-shirts, caps, warm-up jackets, tie clasps and chains, belt buckles, wallets, pens, pencils, rings, and similar items for the personal use of AMA members. For sanctioned contests, trophies bearing the AMA emblem are being made available to the directors and sponsors at reasonable prices.

Orders for the entire line will be handled directly through the Supply and Service Section of AMA Headquarters, 1025 Connecticut Ave., Washington 6, D. C. Many of the products will be warehoused at 485 Milwaukee Ave., Chicago, Ill.

One of the bigger meets to be held in the East and right in AMA's back yard is the National Capital Model Air Show which has been scheduled to be held July 22nd at Andrws AFB, Md. As usual, an impressive array of events and prizes are planned. Many will remember how pleased their wife or mom was when they brought home some of the silverware that has been awarded for the last couple of years. Handsome trophies are awarded too!

In setting the contest date for the National Capital Model Air Show, the main problem was that of avoiding setting the date on the same date that another meet was to be held nearby. Just about every Sunday through the end of July was ruled out due to other contests.

Many of you know that the closing date for contests where winners may qualify for the Detroit Internationals is July 29th. Since the "Show" is a Plymouth Qualification Meet, some fast switching of contest dates had to be done.

Fortunately, the Martin-Leppert-Sipes Post 9274 of the V.F.W., Falls Church, Va., had reserved the date of July 22 for their control line stunt and speed Eastern States Model Airplane Meet. Conferences with the commander of the Martin-Leppert-Sipes Post and officers of the Falls Church Balsa Beetles, sponsored by the V.F.W., indicated a willingness to make available more contests for modelers to attend by rescheduling their meet for August 5th.

AMA SANCTIONED CONTESTS

July

1—Shelby, O. Class AA Shelby Balsa Buzzards' 6th Annual Meet for FFG and OR. H. L. Robinson, C.D., Shelby Pure Milk Co., Shelby, O.

1—Lebanon, Pa. Pending.

1—San Dimas, Calif. R.O.W. Record Trials for R.O.W. FFG and OR. Russell D. Johnson, C.D., 344 Duane Ave., San Gabriel, Calif.

1—Marion, Ill. Class AA Marion Lions Club—Plymouth Flying Circus for FFG, OR, TLG, CLS, CL. Edward H. Aikman, C.D., 1020 North Market St., Marion, Ill.

1—Bridgeport, Conn. Class AA Herald-Plymouth Model Plane Contest. CL and CLS events. Earl "Bud" Gay, C.D., 629 Boston Ave., Bridgeport, Conn.

4—Baltimore, Md. Pending.

4—Peoria, Ill. Contest for CL, CLS, TR, and RC. Morgan Baldridge, C.D., 327 So. Washington St., Peoria 2, Ill. Pending.

4—Neenah, Wisc. Class AAA 1st Annual Plymouth Model Airplane Derby for CL, CLS, CLFS, TR, and OR. Hugh Ziebell, C.D., 630 20th St., Oshkosh, Wisc. Entry is restricted to residents of Wisc.

7-8—Enid, Okla. Class AA Exchange Club of Enid—Plymouth Dealers Model Air Meet. Robert W. Barlow, C.D., P. O. Box 1212, Oklahoma City, Okla. Pending.

8—Manchester, Conn. Class A Connecticut Stunt and Scale Meet for control line models. Entry is restricted to residents of Conn. George Fitzgerald, C.D., 83½ Charter Oak St., Manchester, Conn.

8—St. Cloud, Minn. John Voth, C.D., 24 Sixth Ave. South, St. Cloud, Minn. Pending.

8—Akron, O. Class AA Akron Society of Model Plane Engineers Glider and Rubber Powered Championship Contest. Henry Thomas, C.D., 515 Mohawk Ave., Akron, O.

8—Winston-Salem, N. C. Free Flight Meet. Contact Ed. Aldridge, 853 Watson Ave., Winston-Salem, N. C., for information. Pending.

8—Chicago, Ill. Write to A. G. Davis, 2516 North Greenview Ave., Chicago 14, Ill. for information. Pending.

8—Linden, N. J. Class AAA New Jersey State Exchange Club Championship Model Meet for CL, CLS, HLG, TR, Beauty, and Combat. James A. Hunt, C.D., 321 Martin Rd., Union, N. J.

8—Omaha, Nebr. Omaha and Council Bluffs Plymouth Dealers' Model Airplane Contest for FFG; CL, CLS, and OR. Oscar L. Olson, C.D., 2122 North 56th St., Omaha, Nebr.

8—Vincennes, Ind. Class AA Vincennes Plymouth Model Meet for CLS, CL, SLFS, OR, and FFG. Frank Goebel, Jr., C.D., 1026 MacArthur Circle, Evansville, Ind.

14-15—Bismarck, N. D. North Dakota State Plymouth Meet for CL, CLS, FFG, CLFS, RC, and Combat. Arthur J. May, C.D., Bismarck, N. D.

15—Cleveland, O. Class AA 4th Annual AA Contest for FFG. John W. Grega, C.D., 10422 Gay Ave., Cleveland, O.

15—Hatboro, Pa. Philadelphia Plymouth Dealers Model Plane Contest for FFG, OR, CL, CLS, RC, and Beauty. Matthew Sullivan, C.D., 2078 Simon St., Philadelphia 24, Pa.

15—E. St. Louis, Ill. Plymouth Dealers Model Airplane Contest for CL, CLS, CLFS, and Combat. Jack W. May, C.D., 1437 No. 48th St., East St. Louis, Ill. Pending.

15—Owensboro, Ky. Class AA Owensboro Plymouth Optimist (OPO) Model Plane Contest for CL, CLS, and CLFS. Perry D. Wilson, C.D., 304 E. 23rd St., Owensboro, Ky.

CONRAD CONNROD
BY BOB GOODEN —
WHEN CONRAD WAS A LITTLE BOY, HE DIDN'T HAVE A THING, EXCEPT A BROKEN RAZOR BLADE AND PINS, AND WHAT MONSTERS HE TURNED OUT · · ·

YEARS GO BY
RWG

NOW CONNIE'S GOT EVERY PIECE OF POWER EQUIPMENT THAT'S MADE, AND LOOK WHAT HE BUILDS —

15—Medina, O. 3rd Annual Medina Model Meet for OR, FFG, CL, and CLS. Entry is restricted to residents of Medina County. Robert W. Housley, C.D., 2190 23rd St., Akron, O.

20-21-22—Detroit, Mich. Michigan State Meet for OR, FFG, CL, CLS, and CLFS. Entry is restricted to residents of Mich. Merrill C. Hamburg, C. D., 567 W. Hancock, Detroit, Mich.

22—Greenville, O. Write to James Trissell, 215½ Wayne Ave., Greenville, O., for information. Pending.

22—Visalia, Calif. Visalia Model Airplane Assn. Record Trials for FFG. Emory O. Hull, Jr., C.D., P. O. Box 284, Ivanhoe, Calif.

22—Hagerstown, Md. Pending.

22—West Chester, Pa. Pending.

22—Joliet, Ill. Class AA Exchange Club of Joliet Model Plane Show. Glenn F. Stearman, C.D., 420 Landau Ave., Joliet, Ill.

22—Charleston, W. Va. Contest for CL, CLFS, OR, and Glider. R. R. Smiley, C.D., P. O. Box 749, Beckley, W. Va. Pending.

22—Minneapolis, Minn. Minnesota Plymouth Dealers Model Airplane Contest. Write to Paul J. Ring, 2816 East 42nd St., Minneapolis 6, Minn., for information. Pending.

22—Washington, D. C. National Capital Model Air Show for FFG, CL,CLS, Beauty, OR, TLG, and PAA Load. Write to Corr's, 812 9th St., N. W., Washington, D. C., for information. Pending.

22—Paducah, Ky. Pending. Write to D. C. Morgan, 611-613 Broadway, Paducah, Ky., for information.

22—Syracuse, N. Y. Plymouth Model Plane Contest for OR, HLG, FFG, CL, and CLS. Harry C. Copeland, C.D., 101 Lincoln Ave., Syracuse 4, N. Y.

22—Jamestown, N. Y. Plymouth Dealers of Jamestown Meet for CL and CLS. C. L. Berlinghoff, C.D., 515 Prendergast Ave., Jamestown, N. Y.

22—Lloydsville, O. 1st Annual Kennedy Hardware Free Flight Contest. Harold Bowman, C.D., 207 South Penn St., Wheeling, W. Va. Pending.

23-29—Dallas, Tex. 1951 National Model Airplane Championships. IHLG, IR, OR, TLG, OHLG, FFG, FFG R. O. W., OR Flying Scale, RC, Navy Radio Control Bombing, PAA Load, P.A.A. Clipper Cargo, CL, CLS, CLFS, TR, and Navy Carrier events are scheduled. Write to Maurice Teter, 2025 Abrams Rd., Dallas, Tex., for information.

29—Baltimore, Md. Pending.

29—Knoxville, Tenn. Class AAA Knoxville Model Airplane Club 5th Annual Meet for CL, CLS, CLFS, TR, HLG, TLG, FFG, and OR. Henry Leon Varner, C.D., Rt. No. 13, Fountain City 18, Tenn.

29—Woonsocket, R. I. Class A Club Meet for OR, FFG, CL, and CLS. Thaddeus W. Wenclawik, C.D., 58 Providence St., Woonsocket, R. I. Entry is restricted to members of the Woonsocket Flying Fools Model Airplane Club.

August

5—Minneapolis, Minn. PAA Load Contest. Pending.

5—Akron, O. Class A Akron Society of Model Plane Engineers' Club Contest for HLG, TLG, and OR. Entry is restricted to members of the A.S.M.E. and residents of the Akron District.

5—Waynesboro, Pa. Pending.

5—Falls Church, Va. Control Line Contest. Write to Wilbur S. Hinman, Jr., C.D., 410 Great Falls St., Falls Church, Va., for information. Pending.

12—Medina, O. Class AA Medina Model Meet for FFG. R. W. Housley, C.D., 2190 23rd St., Akron 14, O.

12—Lancaster, Pa. Class AA 4th Annual Model Airplane Meet for FFG, CL, CLS, OR, TLG, and TR. Paul J. Miller, C.D., 567 Pershing Ave., Lancaster, Pa.

19—Hicksville, L. I., N. Y. Class AA Long Island Invitational AA Championships. All AA Free flight events are scheduled including ROW, Flying Scale, and Clipper Cargo. William Johnke, C.D., 601 Meadowbrook Rd., Uniondale, Hempstead, N. Y.

19—Visalia, Calif. Visalia Model Airplane Assn. Record Trials for FFG. Emory O. Hull, Jr., C.D., P. O. Box 284, Ivanhoe, Calif.

22-27—Detroit, Mich. Class AAAA Ltd. Fifth International Model Plane Contest. Tentatively scheduled events are OR, OHLG, FFG, CL, CLS, CLFS, TR, Navy Carrier, and Combat. See your Plymouth Dealer for information.

September

2—Medina, O. Class AA Second Annual Medina Model Meet for all events with the exception of TR and Jet. R. W. Housley, C.D., 2190 3rd St., Akron 14, O.

2-3—Pawtucket, R. I. Class AAA All New England Model Meet for CL, CLS, CLFS, TR, FFG, and OR. Arthur Bergeron, C.D., 55 Ricard St., Seekonk, Mass.

3—Far Hills, N. J. Pending. Write to J. T. Christian, Dunwalke Farm, Inc., Far Hills, N. J., for information.

9—New Britain, Conn. Class AAA Connecticut State Championships for CLS, CLFS, and CL. Richard Matava and Michael Adajian, C.D.'s, 358 Prospect St., Hartford, Conn.

9—Akron, O. Class AA Inter-City Wakefield Type Team Competition. Henry Thomas, C.D., 515 Mohawk Ave., Akron, O.

16—Visalia, Calif. Visalia Model Airplane Assn. Record Trials for FFG. Emory O. Hull, Jr., C.D., P. O. Box 284, Ivanhoe, Calif.

16—New York, N. Y. Class AAA Tenth Annual Prop Spinners' Northeast Championships for OR, FFG, and RC. William Fletcher, C.D., 8708 Grand Ave., Elmhurst, L. I., N. Y. Pending.

23—Harrisburg, Pa. Class AAA 7th Annual Pennsylvania State Exchange Club Meet. Entry is restricted to residents of Pa. Pending.

October

6-7—Woonsocket, R. I. Class AA Flying Fools Fair for OR, FFG, CL, and CLS. Thaddeus W. Wenclawik, C.D., 58 Providence St., Woonsocket, R. I.

21—Visalia, Calif. Visalia Model Airplane Assn. Record Trials for FFG. Emory O. Hull, Jr., C.D., P. O. Box 284, Ivanhoe, Calif.

Scrap Box

(*Continued from page 5*)

Southern Aerolists, (M.A.C.) is stunt," Bob begins. "I definitely agree with Mr. J. C. Yates about giving bonus points for stunts done at 0' altitude. (This is just a little thin Bob. Give us at least one or two feet of clearance!) Everyone knows that it takes more skill and practice to fly and stunt close to the ground, also that stunts done small and low are much easier to judge. While I am on the subject of stunt flying, I would like to say that the A.M.A. stunt pattern is getting to be monotonous. How about some consecutive inside and outside square loops, also add square horizontal eights and four leaf clovers? A moment of silent and wishful thinking now about getting some well educated stunt judges who don't have to leave half-way through the contest." Thanks for the comments Bob, they are well taken.

Let's come to the rescue of the poor judge. We heartily agree that when stunt judges start judging, they should stay on the bench until the contest is over as this will keep the point pattern uniform. Please fellows, let's give these poor guys something to eat and at least one rest period during their vigil. These unheralded heroes are doing their best to officiate at the "hot corner" of model flying. Judging precision flying is the toughest nut to crack at any U-control meet.

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